

AMERICAN JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN

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65489
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VOLUME XLI.

JANUARY-JUNE, 1900

NEW YORK
WILLIAM WOOD & COMPANY
1900

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THE AMERICAN
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AND
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VOL. XLI.

JANUARY, 1900.

No. 1.

ORIGINAL COMMUNICATIONS.

THE RELATION OF INSANITY TO PELVIC AND OTHER
LESIONS.¹

BY

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THE quarter of the century now closing has witnessed the passing of the mad-house and the evolution of the modern hospital for mental diseases. The closely tiled buildings and grounds, the mechanical contrivances for the physical restraint of the poor lunatic, and other crude methods of treatment have gradually been abandoned. The rapid progress in medical science and surgical art has given alienists new weapons wherewith to combat the dread scourge of insanity. This disease, in the light of modern research, is not now looked upon with the hopelessness of bygone days, and much has been and will doubtless yet be done toward rescuing many of the hitherto hopeless unfortunates.

The discovery of antiseptic surgery by Lister gave the cue from which evolved the present principles of aseptic surgery, reducing danger to life from operation to a minimum. From the field of general surgery developed the special branch of

¹ Read before the Detroit Medical and Library Association, November 13, 1899.

gynecology, which marked a new era in the treatment of diseases to which women are prone. It is universally conceded that immense benefit can be conferred by operative treatment upon women who suffer from the lesions entailed by the accidents of maternity. That this phase of treatment has been neglected by asylum authorities having in their care large numbers of female lunatics, has called forth strong protests from men eminent in the profession of medicine in the Old World and the New. I will quote briefly the words of some of these: More-Madden says: "The general non-recognition of utero-ovarian disorders among the insane in lunatic asylums is easily understood. Most alienists pay little attention to the study of gynecology. . . . Under such circumstances, no complaint of uterine disorders being made by the patients, these diseases may unsuspectedly run their course as long as existence endures." Playfair writes that "insane women are as liable to uterine disease as sane women are, and when they have marked disease of the reproductive organs, of whatever type, it should be appropriately treated, whatever the condition of the mental function." Robert Barnes says that "asylum authorities should employ gynecologists to make such gynecological examinations. There was no reason why a woman in an asylum, who was suffering from a uterine complaint, should not have it attended to, whether or not it made any difference to her mental condition." Skene says: "The psychologist may have a number of insane patients who suffer from uterine and ovarian diseases which may escape his notice."

Among the first to put into practical operation gynecological treatment among the insane was Manton, who, about twelve years ago, commenced to investigate along these lines in the Eastern Michigan Asylum. After some years' experience in this work he says: "I have never operated on an insane woman, no matter to what extent demented, without some relief to her mental condition and a decided improvement in the personal comfort of the patient."

About eight years ago the late Dr. Rohé, then supèrintendent of the Maryland Hospital for Insane, commenced to examine the female insane under his charge with reference to the presence or absence of pelvic disease. He states that 40 of the first 100 examined had lesions of the sexual organs that would justify operative interference. Having the courage of his convictions and a knowledge of the art of gynecology, he carried out the necessary treatment. His subsequent observa-

tions led him to the conclusion that "earlier operation in appropriate cases would very largely increase the proportion of recoveries."

In the beginning of the year 1895 my superintendent, Dr. Bucke, appointed a consulting gynecologist, Dr. Meek, who, in conjunction with myself, laid plans for the systematic investigation and prosecution of the work in the London Asylum. We carefully examined the histories of a large number of our female inmates, but found very little information that would guide us in making a selection of cases. We questioned many patients as to the functions of their reproductive organs, but found such procedure barren of results owing to their deranged mental condition. Finally we selected from among these some of the young and middle-aged females who had married and borne children, and proceeded, with the aid of an anesthetic, to make systematic examinations. The results of our labors elicited the surprising fact that gynecic disease was the rule and not the exception in these cases. We have been accused of imagining lesions in these examinations; but the list which I will give is anything but imaginary, easily diagnosed, and were undoubtedly present.

We have had during the past five years over 800 women under observation and have actually examined 220. Of these we found distinct lesions of the pelvic organs in 188, or 85 per cent of those examined. This would represent that over 23 per cent of our insane female population had some complicating lesion of the reproductive system. Glancing briefly at the pathological lesions diagnosed in the 188 women, there were found subinvolted uteri or endometritis, or both, in 132 cases; some 18 women gave evidence of dysmenorrhea or menorrhagia; 62 had diseased or lacerated cervixes, and 5 had cervical polypi; retroverted or prolapsed uteri were present in 66 patients, and 18 had new growths, 16 being myomatous and 2 malignant; 33 had marked disease of the ovaries and tubes, and 37 had lesions of the vagina, ranging from fistula to complete tears of the perineum. In all there were diagnosed 371 lesions in the 188 patients.

This presents a somewhat formidable list, but when it is considered that those examined were selected as possible cases of pelvic disease, and numbered only one-fourth of the female patients in residence during the past five years, it will appear less startling than at first sight.

Having thus demonstrated by actual examination that much

physical disease of this nature existed among our female insane, and knowing that, if similar disease existed among their sane sisters, relief would be sought for by them for such ailments, we deemed it our duty to remove these sources of physical ill health in our charges. To do this we adopted the best gynecological methods in vogue, and have to date operated upon 173 female patients. The surgical measures carried out consisted of curettage, 131 times; trachelorrhaphy or amputation of the cervix, 53 times; Alexander's operation, 37 times; ventrosuspension of the uterus, 13 times; perineorrhaphies, 27 times; ovariectomies, 22 times; hysterectomies, abdominal, 14 times; hysterectomies, vaginal, 9 times; myomectomies, 3 times; celiotomy for tubercular peritonitis, 2 times. This makes a total of 311 operations, some patients needing two or more operations to remedy two or more lesions found in their cases.

As a result of this work we considered that a distinct advance had been made toward restoring the physical health of these unfortunates. In this we were rarely disappointed. If this were the sole end attained we considered that much had been accomplished. But there occurred, however, mental phenomena that even to us were remarkable in their manifestations. We witnessed, in some cases, that an immediate restoration of the mental functions followed the operation. We observed, in others, a steady progression toward a normal mental condition.

That curious mental phases depended upon the presence of utero-ovarian disease had already been discussed by Regis in his "Manual of Mental Medicine," where he says: "The psychic disorders follow exactly the phases of utero-ovarian symptoms, increasing with them, or, on the other hand, improving or disappearing as the latter improved or disappeared."

Classifying the cases operated upon under the head of the principal pelvic disease removed in each case, we get definite and valuable information as to the relative influence of the various lesions in maintaining or creating mental alienation.

1. After the removal of ovarian and tubal disease in 24 patients there occurred a return to sanity in 15, or 63 per cent; an improvement in 4, or 17 per cent; no change in 3, or 12 per cent; and 2, or 8 per cent, died from complicating pneumonia, one on the seventh and the other on the twelfth day succeeding operation.

2. Following 72 cases in which disease of the lining, body, or neck of the uterus was corrected, 33, or 46 per cent, recovered mentally; 14, or 19 per cent, improved; and 25, or 35 per cent, remained stationary.

3. Correcting retrodisplaced and prolapsed uteri in 47 cases was followed by mental recovery in 17, or 36 per cent; mental improvement in 12, or 26 per cent; no change took place in the mental condition of 17, or 36 per cent; and 1, or 2 per cent, died, death being caused from exhaustion brought on by hemorrhage, induced by patient tearing away the ligatures.

4. The extirpation of tumors, malignant and benign, in 20 cases was succeeded by 6 recoveries, or 30 per cent; 8 improved, or 40 per cent; 5 remained unimproved, or 25 per cent; and 1, or 5 per cent, died.

5. Repairing of injuries to vagina in 10 cases brought about mental recovery in 2, or 20 per cent; mental improvement in 3, or 30 per cent; and 5, or 50 per cent, failed to show any change.

Summing up the 173 gynecological cases, I find that, subsequent to operation, 73, or 42 per cent, recovered mentally; 41, or 24 per cent, improved mentally; in 55, or 32 per cent, the mental condition remained stationary; and 4, or 2 per cent, died. From this it is evident that 114, or two-thirds of the whole number, were benefited directly or indirectly, both physically and mentally, by the surgical treatment carried out.

To illustrate the rapidity of the mental convalescence in some and the slow improvement in others, I will give briefly the history of a few cases.

S. C., æt. 26 years, admitted into the London Asylum November 10, 1896, suffering from chronic mania. She had already spent nearly five years in other asylums and had been pronounced a hopeless case. She had suffered physically and mentally during her menstrual periods from the time of puberty, which gradually developed into a continuous mania. Examination revealed that the left ovary had become a multilocular cyst as big as an orange. This was removed by operation on December 1, 1896. She made an uninterrupted physical recovery. For two months after operation her mental condition showed no change, being interspersed with outbursts of maniacal violence. After the last of these attacks passed away she appeared quite sane, and has for two and a half years been perfectly well. Recently she has taken up the profession of nursing.

S. L., æt. 33 years. When admitted on December 9, 1897, had been insane since receiving an injury resulting in disease of the pelvic organs, caused by falling from a tree sixteen years previous to operation. She had been in an asylum before. Examination showed a pelvic mass which during operation proved to be agglutinated uterus, ovaries, tubes, and small intestines. The uterus and its adnexa were removed on January 11, 1898. After the shock of operation had passed she conversed and acted quite rationally and remained well until discharged. A recent communication from her states that she still retains good mental health.

P. E., æt. 40 years, was committed to the asylum on December 6, 1890. She had been an inmate for five years before an examination of the pelvic contents was made. Attention was drawn to her by the existence of menorrhagia. It was found that the uterus was several times larger than normal, and the endometrium was lined with a gelatinous deposit. Vaginal hysterectomy was done on February 18, 1896, and she subsequently made a good recovery. The maniacal mental condition slowly but surely disappeared, and she was discharged a year ago apparently as well as she was previous to her insanity.

McM. M., æt. 27 years, was sent to us for mental treatment on May 9, 1895. She was a case of simple mania, having an occasional outburst of violent crying. Being unmarried she was not examined until December, 1898. Our attention was drawn to her by an attack of severe hemorrhage, which issued from a tear of the labia majora made by herself. The examination revealed a tumor of the left ovary, which, when removed on March 28, 1899, was found to be a dermoid cyst containing well-formed teeth, hair, and seven ounces of sebaceous matter. She made the usual convalescence, and since operation has appeared perfectly well, but is still under observation, although six months have elapsed since the operation.

F. A., æt. 30 years, was found wandering demented on the G. T. R. station platform of London and could give no account of herself. Later on we found that she came from Buffalo and had been in an asylum there. She had been insane for three years. A diagnosis was made of sexual derangement, which proved to be, on operation, December 25, 1896, an adherent uterus and ovaries bound down to the cul-de-sac. Separation of the adhesions, removal of the ovaries, which were badly diseased, and a ventrosuspension of the

uterus were the surgical measures carried out. For two days succeeding the operation she was violently excited, but on the third appeared quite sane and remained so for six months, when she returned to her friends in Pennsylvania.

E. E., æt. 44 years. A case of delusional mania which at time of operation was of two years' duration and apparently hopeless. Curettage of a subinvolted uterus and repair of a lacerated cervix on July 2, 1895, was followed by immediate improvement both physically and mentally. She has been home with her friends for four years now, remaining mentally well.

It is evident, from the recital of these cases, that diseases of the organs whose physiological function is the reproduction of the species are strong factors in determining the status of the mentality of woman. It would also seem from this that it is of the highest importance to the preservation of the mental equilibrium that the condition of the pelvic organs should be early inquired into if a woman presents premonitory symptoms indicating the onset of insanity.

It is not claimed that the removal of pelvic lesions is a panacea for all mental derangements in women. It will not be denied, however, that these diseases are powerful factors in undermining a woman's bodily health and creating a host of nervous disorders until the brain becomes incapable of performing its normal functions. When this stage is reached she rapidly crosses the Rubicon into the domain of insanity and lands in an asylum, often a hopeless, helpless lunatic. I am willing to admit that a certain number of these women would probably have recovered their reason without removal of the complicating pelvic lesion, as many were of a minor type. I am positive, however, that recovery, even in these cases, was hastened by the appropriate treatment of the genital disease.

Conceding all this, there still remains a large number of women who would never have been restored to mental soundness were it not through the instrumentality of surgical interference, and that these women would have still been reckoned among the hopeless incurables comprising the major population of the London Asylum.

The fact that 52 of the 114 patients who either recovered or improved mentally had been insane two years or more prior to the removal of the complicating genital lesion, is in itself presumptive evidence of the relation of physical cause to mental effect.

That gynecology is of great value as an adjunct to ordinary asylum methods can be approximately determined by comparing the number of females discharged, recovered, and improved during the past eight years, as published in the reports relating to this asylum. The number discharged for the last quadrennial period, during which gynecological surgery has been added to our armamentarium, reached the high total of 51 per cent on the admissions, as compared with 33 per cent for the previous four years when no gynecological surgery existed. This represents a gain of over 50 per cent on former methods, which gives a fair estimate of the actual value of this additional method in the treatment of the insane.

It may be urged by some that the operation itself and the subsequent special attention was the principal factor in the mental recovery of many of these patients; but our experience in the surgical treatment of inguinal hernia by the Bassini method in 23 cases effectually sets aside this criticism, as no mental recovery was attained in these, although the surgical means employed and the subsequent nursing were parallel. It has also been claimed that the use of an anesthetic may be an aid in clearing up the clouded mental condition; but our experience succeeding 600 general anesthetizations warrants us in saying that after the immediate effect of the anesthetic passes off, the mental state of these patients is neither worse nor better from its application.

It is interesting, in conclusion, to note the relative value the various lesions have in the production or in the maintenance of cerebral disturbance, by dividing them into three groups.

1. Utero-ovarian disease of an inflammatory origin received attention in 96 cases. The recovery rate following the elimination of these derangements was exactly 50 per cent, or 1 in 2 cases.

2. Utero-ovarian displacements being corrected in 47 cases were followed by 36 per cent of recoveries, or 1 in 3 cases.

3. Utero-ovarian tumors and vaginal lesions of a non-inflammatory type being attended to in 30 cases were succeeded by 26 per cent mental recoveries, or 1 in 4 cases.

From this comparison we deduce the fact that organic lesions of the inflammatory type are the most prominent factors among pelvic diseases in exciting mental alienation, and that displaced organs rank next in importance and tumors last in the order of causation.

As to why this is so can only be conjectured, and several

plausible theories may be propounded in explanation of these phenomena; but there is one fact at least that stares us in the face and cannot be overlooked, viz., that neglect of gynecic surgery in any institution for the treatment of the insane is a serious omission, as where so many women are congregated together there must exist (as we have already shown) many cases of unsuspected and, if not investigated, untreated forms of pelvic disease.

A NEW OPERATION FOR PERSISTENT INVERSION OF THE UTERUS.

BY

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(With plate.)

THE history of the treatment of *inversio uteri* is scarcely creditable to gynecology. Taxis after the first few days of the puerperium has been notoriously unsuccessful. The proposition to press upon the lower uterine segment, returning it first, and Noeggerath's suggestion to press upon a uterine cornu, beginning the reinversion there, have been of little help. The various repositors designed from time to time to exert long-continued and powerful pressure upon the inverted uterine body have not only been generally unsuccessful, but have also inflicted fatal damage upon a considerable proportion of the women upon whom they have been tried. The prolonged use of a *colpeurynter* is extremely painful, almost always unsuccessful, and not infrequently productive of fatal infection.

Gaillard Thomas' proposal to perform an abdominal section, dilating the cervical ring from above while an assistant returns the uterus, was at first hailed as a great advance. Thomas had one successful case by this plan, but he lost another. Mundé and Küstner have each had a fatal case, and Kelly once tried this method without success, finally performing a hysterectomy. The removal of the uterus for inversion ought not to be recommended; it should be, I believe, a needless mutilation of the patient.

Küstner in one case succeeded in replacing an inverted ute-

rus by making a long wound across the posterior vaginal vault into the peritoneal cavity, cutting through the posterior uterine wall in the middle line from two centimetres above the external os to two centimetres below the fundus; reinverting the uterus, beginning at the line of incision; strongly retroverting the uterus and sewing the wound in it through the opening in the posterior vaginal vault.

This method is unnecessarily clumsy and dangerous, and should the woman become pregnant again she would run some risk of ruptured uterus. Bernard Browne, of Baltimore, in 1883 reduced an inversion by incising the posterior wall as in Küstner's operation, dilating the cervical ring through the incision with bougies, sewing the uterine wound while the uterus was still inverted, and then reinverting it. There are the same objections to this operation as to Küstner's.

Every one admits that the obstacle in reducing an inverted uterus is the contracted ring muscle of the cervix. It is incomprehensible, therefore, that no one hitherto, as far as I know, has thought of removing this obstruction by the easiest, simplest, and safest plan—namely, by cutting the cervical muscle in two, which can be done in a few seconds, without opening the peritoneal cavity, without danger, and with the result of immediately removing the only obstacle to replacement.¹

Having under my charge an inversion of three months' duration, I determined to try this plan.

The patient, Mrs. C., age 19, was brought to the Howard Hospital on November 15, 1899, by Dr. Charles J. Hoban, who had not, however, attended her in confinement. She was delivered August 17, for the first time, after a prolonged and painful labor, but without instruments. The placenta was adherent and was manually detached. The patient, according to her own story, immediately lost consciousness and remained unconscious for forty-eight hours. The attending physician attempted a reposition, but failed. The next day a gynecologist was called in consultation, but he also failed to replace the uterus. The following day the attempt was repeated under ether, but without success. There was another attempt at reposition two weeks later, with a like result.

On examination I found a complete inversion, good involution, and a very firmly contracted cervix. I determined to try taxis under ether, and, if I failed, to sever the cervix and replace

¹ The old idea that adhesions obstructed the replacement of an inverted womb has been dissipated by all modern observation.

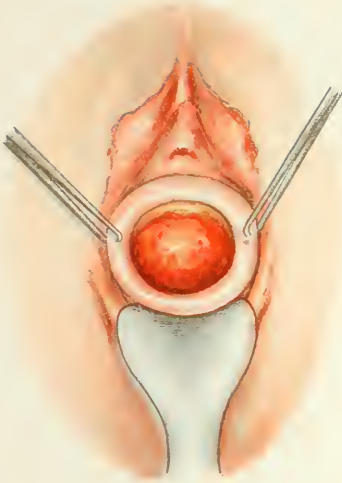


Fig. 1

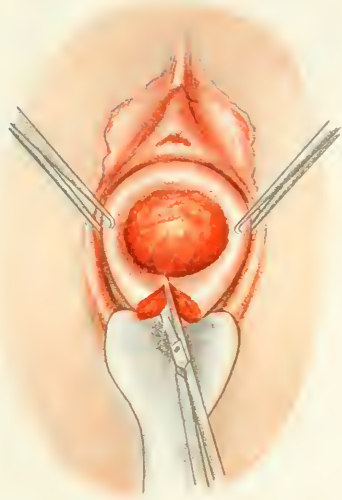


Fig. 2

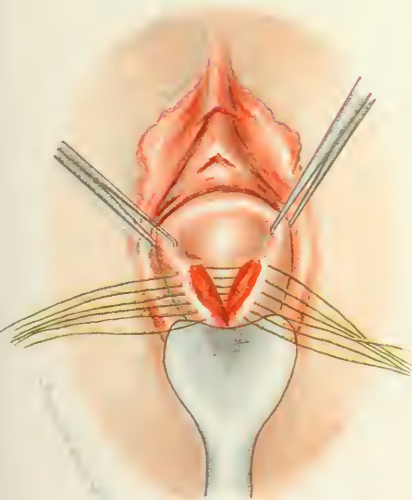


Fig. 3

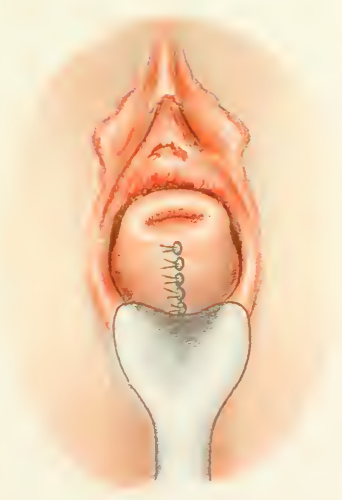


Fig. 4

A New Operation for Inversion of the Uterus.

—Hirst.

the uterus. Success in four other cases¹ by taxis alone encouraged me to hope that the operation might not be necessary. I failed, however, completely. The cervix was then cut in two in the median line posteriorly, the incision being carried higher on the internal than on the external surface, the ring muscle being thus almost, if not completely, severed without opening the peritoneal cavity. Then comparatively light pressure, with one finger tip on the lower uterine segment just above the upper angle of the wound, reinverted the uterus easily (see plate). The cervix was then joined again by sutures as shown in Fig. 4. The whole operation scarcely required fifteen minutes. The patient has made an afebrile recovery and the uterus remains in good position.

1821 SPRUCE STREET.

THE FREQUENCY AND MORTALITY OF ABNORMAL PELVES.²

BY

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A FEW years ago it was commonly believed that abnormal pelves were rare in America. When, however, pelvimetry was regularly practised in obstetric clinics, it was at once observed that a very considerable number of patients presented themselves whose pelves were contracted or in some dimensions differed from the average. To ascertain the frequency of such conditions, it is evident that all patients coming under observation must be subjected to pelvimetry, and not alone those whose labors are complicated.

A reference to the records of European clinics shows wide variation in the percentages reported. This difference extends from the report of Russian observers, giving 1.2 per cent of

¹ Since writing the above I have had another case of complete inversion in consultation with Drs. Treacy and Hoban, of Philadelphia. I saw the woman an hour or two after labor, and found not only a complete inversion of the uterus, but of the cervix as well. Efforts at taxis under ether were at first futile till I noticed a very deep tear of the cervix on the right side, involving the vaginal vault. Making pressure on the lower uterine segment just above the apex of the tear, the uterus was easily replaced.

² Read before the Section on Gynecology of the College of Physicians of Philadelphia, October 19, 1899.

contracted pelves, to the statistics of Leopold, of Dresden, who found 24.3 per cent of contraction in the pelvis. It is evident that races differ in this regard, that systems of measurements must differ, that different observers in the same clinic must also obtain different results, and that it is practically impossible to ascertain with mathematical accuracy the exact number of abnormal pelves. Fortunately, the choice of a mode of delivery in a given case does not depend exclusively upon pelvimetry, nor does the prognosis of labor; and hence the measurement of the pelvis, although valuable, is but one of several factors which enable the obstetrician to diagnosticate dystocia and by appropriate treatment to secure a favorable delivery.

Among American observers, Flint, in New York, found 1.42 per cent of pelvic contraction; Reynolds, in Boston, 1.13 per cent; Crossen, in St. Louis, 7 per cent; Dobbin, in Baltimore, 11.45 per cent; and Williams, in Baltimore, 13.1 per cent. Of the number of cases examined, Flint had examined 10,233, Reynolds 2,137, Crossen 800, Dobbin 350, and Williams 1,000.

We have recently had occasion to examine the records of 1,234 patients who were examined by pelvimetry and palpation, both external and internal. These were of all races inhabiting the United States, except the Chinese and Indian. The average size of the pelvis was taken to be: anterior superior spines, 24 to 26½ centimetres; crests, 28½ centimetres; trochanters, 32 centimetres; right oblique diameter, 22½ centimetres; left oblique diameter, 21 to 22½ centimetres; external conjugate, 20½ centimetres; internal conjugate, 11½ centimetres; circumference, 85 to 90 centimetres.

A variation from the average measurement of 2 centimetres in the antero-posterior diameter, or of 2 centimetres in any other two diameters, was considered an abnormality of the pelvis. No distinction is attempted, in the word "abnormality," between contracted and enlarged pelves. Both may occasion complications of labor, and each was considered an abnormal pelvis.

The most frequent abnormality observed was contraction of the pelvis. The justo-minor was the most common type of contracted pelvis, being 13 per cent of all forms of pelvic contraction. Next in frequency was the rachitic, 6 per cent; next, the flat non-rachitic, 5.7 per cent; and most rare, the obliquely and irregularly contracted, .2 of 1 per cent.

The justo-major pelvis or symmetrically enlarged pelvis was found in 7 per cent of pelvic abnormalities.

In 1,224 cases the total number of abnormal pelves was 392, being 32 per cent of the entire number. The percentage of contracted pelves was 25, corresponding closely with the statistics of Leopold in his clinic at Dresden. The paramount interest attaching to this subject lies in the influence which pelvic abnormality exerts upon labor and the life and health of mother and child. It may be of interest to observe in what percentage of all classes of patients having normal and abnormal pelves labor is spontaneous. In this series 84 per cent of labors were terminated spontaneously, leaving 16 per cent requiring operative interference.

Comparing this result with the course of labor in abnormal pelves, we find that in cases of pelvic abnormality 80 per cent of labors were spontaneous and 20 per cent required operative assistance. It must not be understood that in a series of highly contracted pelves 80 per cent of labors could be spontaneous, but it is undoubtedly true that in a very considerable number of abnormal pelves, most of them contracted, labor terminates without operative interference. In some of these cases the patient was kept under close observation, was put in good general condition and urged to do such work as would best facilitate the descent of the child into the pelvis and favor spontaneous labor. In other cases she was not seen until labor had begun. In all patients having contracted pelves, the bladder and rectum were frequently emptied during labor, the patient's general strength was sustained by stimulants and proper food. Anodynes were employed when needed, posture was utilized to aid the descent of the child, and every means before interference was employed. This must have had an important bearing upon the large percentage of spontaneous births in these cases.

The operations necessary in the entire series of cases were: forceps, 98; version, 49; embryotomy, 9; induced labor, 37; symphyseotomy, 7; Cesarean section, 11—making a total of 211, or 16 per cent.

The operations performed in cases of abnormal pelves were: the use of forceps, 17; version, 4; embryotomy, 8; induced labor, 31; symphyseotomy, 7; Cesarean section, 11—or 20 per cent of the cases.

When the two sets of operations are compared, it is seen that the use of forceps and version is not as frequent relatively in abnormal pelves as might have been expected. This arises from the fact that in cases of considerably contracted pelves where operation is necessary, neither of these procedures should

be chosen. Either the induction of labor or symphyseotomy or Cesarean section should be elected in cases not already infected and in which the child is in good condition. When the child is dead, or feeble from long-continued labor, embryotomy should be chosen.

The maternal mortality in the entire series of cases was as follows: septic infection, 4; gonorrhea, pyelitis, nephritis, 1; pulmonary embolism, 1; toxemia and nephritis, 2; pernicious anemia, 1; pernicious nausea and vomiting, 1; concealed accidental hemorrhage, 1; tuberculosis, 1; croupous pneumonia (pneumococcus infection), 1; puerperal mania, 1—total maternal mortality, 19, or 1.5 per cent. Total septic mortality among the mothers was as follows: streptococcus infection, patients admitted to the hospital infected, 2; streptococcus infection following previous criminal abortion, 1; mixed infection, bacillus coli communis and staphylococci, 1—total, 4, or .3 of 1 per cent.

When we compare this mortality rate with that of the patients having abnormal pelves we find the following: in abnormal pelves, eclampsia, and nephritis, 1; pernicious anemia, 1; croupous pneumonia (pneumococcus infection), 1; septic infection, 2—total, 5, or 1.2 per cent.

The septic mortality in abnormal pelves was: streptococcus infection, 1; mixed infection (bacillus coli communis), 1—total maternal septic mortality in abnormal pelves, 2, or .5 of 1 per cent.

The infant mortality of all cases was as follows: dead before labor, 39; birth pressure, 3; asphyxia, 2; marasmus, 16; syphilis, 5; nephritis, 1; hydrocephalus, 1; uremia, 3; visceral hemorrhage, 1; intestinal obstruction, 1; pneumonia, 1—total infant mortality, 73, or 6 per cent.

The conditions under which these cases were delivered represented very fairly the circumstances under which an obstetric practice is conducted at present. Many of these patients were admitted to the wards of a maternity; at least one-quarter of them were attended in dwellings and tenements of various sorts. They were of all classes and kinds among those seeking medical care. Some of them were able to pay board in a private ward, while others were found destitute and starving in tenements. They were under the care of obstetric physicians varying in experience and operative facilities. All are accustomed to practise antiseptic precautions and all are directly interested in obstetric work. The major operations were done

in a maternity under good conditions. The treatment was virtually under the control and advice of the chief of the obstetric staff.

The following conclusions seem justified from the foregoing:

1. Among child-bearing women in the United States of the white and negro races, 25 per cent have pelves smaller than the average and 7 per cent have pelves larger than the average.

2. Four-fifths of patients having abnormal pelves delivered themselves spontaneously. The operations most suitable for well-marked pelvic contraction and most successful for mother and child are the induction of labor, symphyseotomy, and Cesarean section when the mother is uninfected and the child is in good condition, and embryotomy when the mother is infected and in bad condition and when the child is dead or likely soon to die.

3. The general mortality rate and the septic mortality rate of all classes of labor and of labor in abnormal pelves compare favorably with the results obtained by modern medicine and surgery when obstetric practice is conducted in accordance with modern scientific knowledge of the subject.

CYSTIC DISTENSION OF THE APPENDIX VERMIFORMIS,

WITH A REVIEW OF THE LITERATURE OF THE SUBJECT.

BY

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(With three illustrations.)

MRS. P., a large and fleshy woman, was brought to me in May of this year by Dr. A. L. Ambrose, of Hanover, Mich., for a large myofibromatous tumor. She is 52 years of age and her family history is negative. She first discovered a tumor of the abdomen six years ago, which gradually increased up to six months ago, since which time its growth has been much more rapid.

Physical examination showed a solid tumor extending from

midway between the umbilicus and sternum above to deep into the folds of the right broad ligament below. The uterine cavity measured 9 inches in depth. Menstruation ceased two years ago, up to which time she bled profusely. Her general condition, when I saw her, was not bad, though the bladder, kidneys, rectum, and stomach were all more or less disturbed because of pressure. The urine was deficient in solids (six and one-half grains of urea to the ounce), but this was largely overcome previous to operating by copious draughts of hot water.

The abdomen was opened on May 25 of this year and the uterus and tumor removed with but little difficulty, though the right ureter was exposed for about three inches in dissecting out the intraligamentous portion of the corresponding side. All raw surfaces were nicely covered with peritoneum in the usual way. The uterus and tumor were large, hard, fibrous, and nodular, weighing twelve pounds. On section the tumor



FIG. 1.—Cystic appendix. A, lumen of appendix; B, mesenteric vessels, etc.; C, body of appendix; D, a bunch of cysts on the distal extremity.

mass cut with difficulty. Fibrous bands ran through the structure, and the whole mass was surrounded by a dense, thick, and fibrous capsule, from which it could be shelled with little difficulty. In no part did the tumor mass entirely penetrate the surrounding capsule. The uterine cavity was almost obliterated and contained a foul-smelling, purulent material. The openings from the uterus to the tubes were occluded. Microscopic section of tissue selected from various parts of the mass showed it to be myofibromatous in structure, the fibrous element much predominating.

The ovaries were sclerocystic, with multiple hematmata. Very little of the substance of the ovaries was left intact. The tubes showed cystic and fibrous degeneration, and were constricted and entirely occluded at several points.

I have thus given the macroscopic and microscopic report in full to show that there is nothing pertaining to the uterine

growth which is unusual and which could in any way account for the condition of the appendix. After completing the pelvic work I explored the appendix, which is my invariable rule in all celiotomies, and was not a little surprised to find attached to the extremity of the cecum a mass as large as a kidney or the link of a large bologna sausage. This was tied off and the stump inverted by means of a purse-string suture, supplemented by two Lembert sutures. The abdomen was closed in the usual way, and the patient made an uneventful convalescence.

The appendix (Fig. 1) measured in length 20 centimetres and in diameter 7 centimetres. Its walls were thin, tense, and

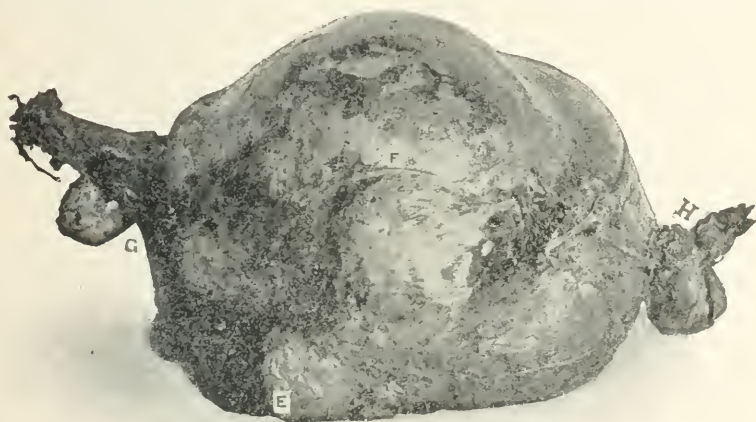


FIG. 2.—Uterus from case with cystic appendix. E, external os; F, body of uterus; G, right ovary and tube; H, left ovary and tube (note cyst).

injected. The mesentery was rather short, the remains of which can be seen on the lesser curvature. There was a bunch of cysts on the distal extremity of the appendix as large as a hickory-nut. The appendix contained a clear and transparent fluid which was absolutely sterile. Notwithstanding the enormous distension present, the patient did not have a single symptom calling attention to the appendix, nor did the most careful inquiry reveal any evidences of appendicitis, either acute or chronic, during any period of her life.

Stimson¹ reports two cases where he found post mortem appendices which were 6 inches long, in one of which the cecum narrowed uniformly into a funnel to terminate in a dilated appendix.

Combemale² reports two cases (dropsy of the appendix vermiformis) which he found post mortem. One was removed from a woman of 60 who died of pneumonia. The appendix was 20 centimetres in length and 10 centimetres in circumference. In neither of these cases was a history of appendicitis during life obtained. In both instances the cecal extremity was closed by adhesions.

Maylard³ records a most interesting case of dilatation of the appendix vermiformis (which was also discovered post mortem) in a patient dying of Bright's disease in Victoria Infirmary. The appendix was found hanging into the pelvic cavity and in immediate contact with the parietes. It hung free from any attachment and was easily withdrawn. "On examination it was found to be 4 inches in length, perfectly normal for its proximal two inches, but the distal portion was dilated into an egg-shaped, tense, cyst-like structure. The appendix was pervious as far as the cystic dilatation, communicating freely with the cecum, but the dilated part was entirely shut off. On opening the dilated portion it was found to be distended almost entirely with a clear, gelatinous substance which could be turned out *en masse*, leaving a smooth, slightly sacculated wall. Near the proximal end was some white, cream-like material, in which was embedded a small calcareous concretion. The peritoneal surface was deeply injected with blood vessels. The appendix had a mesentery continuous with that of the ileum."

Coats⁴ mentions a somewhat similar case, and states that the specimen he there describes is the only one of the kind that he has met with.

Dr. L. L. McArthur⁵ describes a case of amputation of the appendix in which the inflammation was excited by a truss used to keep back an appendix which formed the contents of a hernia. The patient was a child. Upon opening the hernial sac there was found a peculiar sausage-shaped, blunt-extremity tumor, which was lying in the inguinal canal much like a slender cigar, and which proved to be the appendix vermiformis. It would slip back nearly out of the canal when pressed, but immediately pressure was removed would slip down into the canal again. It was about three inches in length, possessing the anatomical structure of the normal appendix, and terminated in a blind sac. It was markedly thickened throughout.

Dr. George P. Biggs⁶ reports two cases of stricture of the

vermiform appendix. In the first case the patient died of chronic alcoholism, without any history, so far as is known, of appendicular symptoms. "The appendix lay entirely behind the cecum and was 9 centimetres long and 2 centimetres in diameter. It had a distinct mesentery except at its tip. About one-half centimetre from its origin its lumen was occluded by firm fibrous bands, which had evidently formed at some previous time in the course of a reparative process following a localized sloughing. The contents of the appendix measured two drachms, was of a slightly pinkish color, and consisted of fat globules, granular matter, and cholesterin crystals." In the second case, of a somewhat similar type, the tube was about 8 centimetres long and three-fourths of a centimetre in diameter. "There were two distinct points of obstruction near the tip, which were apparently not the result of disease, but due to the bending produced by the peritoneum. The patient died of advanced Bright's disease." The conditions here described are not unusual, and are introduced for the purpose of showing that fibrinous bands and strictures may terminate in cystic distension.

Dr. Robert F. Weir⁷ recorded years ago a case of cystic degeneration of the appendix vermiformis occurring in a woman, age 55, who came to him for a tumor situated in the right iliac fossa. The tumor was opened and drained, and discharged a thick, glairy fluid which gave negative results upon microscopic examination. The patient ultimately recovered.

E. E. Montgomery⁸ records a case very like my own. Dr. Montgomery opened the abdomen and made a panhysterec-tomy on a woman 52 years of age for multiple myofibromata. "While making the peritoneal toilet, after removal of the growth, a mass fell into the pelvis. Examination disclosed that it was a tumor of the appendix. It was drawn out and the bowel incised at its upper margin, permitting the removal of the cyst without opening the intestinal canal." The cyst when fresh was $5\frac{1}{2}$ inches long and $4\frac{3}{4}$ inches in its largest circumference.

Weller Van Hook⁹ describes a case of "strangulated inguinal hernia of a cystic appendix vermiformis" occurring in a man of 43 years. The portion of the appendix removed was 6 centimetres in length and 3 centimetres in diameter. There was a good-sized rent at the distal extremity of the appendix, through which mucus was protruding. Van Hook asserts that this is the third case "where a cystic dilatation of the ap-

pendix occurred in a hernia, and the ninety-ninth case of hernia of the appendix." It is the first recorded case of rupture of a cystic appendix by taxis. Van Hook has so thoroughly reviewed in the paper quoted the literature of "hernia of the appendix" as to make it unnecessary for me to prolong this article by introducing data which he has made accessible to English readers.

Shoemaker¹⁰ records the following case: The patient was a man of 60 and died of croupous pneumonia. Notwithstanding the fact that during life there were no symptoms suggesting disease of the appendix, there was found on postmortem a cystic distension of this organ, which measured 4 inches in length and $1\frac{1}{2}$ inches in diameter. At one point rupture was imminent, and at the point of attachment on the cecum the canal was obliterated.

Baillet¹¹ exhibited at the January, 1891, meeting of the Société Anatomique a cystic appendix, and cites another case (author not given) "in which the appendix had the appearance of an adult penis affected with phimosis," and which contained a creamy, whitish fluid. Histological examination showed the walls to be greatly thickened, the mucous membrane being lined "with non-ciliated cylindrical epithelium." No similar case is recorded in the society's bulletins up to 1891.

Paul Guttman¹² discovered post mortem in a woman 72 years of age an appendix which measured 14 centimetres in length and 21 centimetres in circumference (thirty-two times the normal circumference of the appendix).

Virchow¹³ mentions a case of cystic distension of the vermiform appendix as large as a man's fist.

Wenzel-Grüber¹⁴ reports a case 6 centimetres long "which was attached to the cecum by a pedicle 4 centimetres long. The cyst had a transverse diameter of $4\frac{1}{2}$ centimetres and was filled with a viscid mucus. The case was remarkable for the fact that the obliteration of the lumen was brought about by a chronic tubercular catarrh" (Van Hook).

Other cases are recorded by Finkelstein, Ribbert, Steiner, Kelynack, Berry, Orth and Leube, Bierhoff and Treves, notes of which are given by Van Hook⁹. That the condition is not a common one is shown by the fact that only three cysts were found in 2,286 autopsies made in Basle (Steiner).

Senn¹⁵ discusses what he designates as "appendicitis obliterans," which is a progressive form of inflammation, characterized by epithelial and glandular destruction and complete obliteration of the lumen of the appendix. It is probable that

this process will explain the impervious condition of the proximal end of the appendix in the case recorded by myself. This caused retention of the septic material, which in turn excited non-suppurative lymphadenitis and lymphangitis. The retained fluid became sterile as time progressed, just as occasionally happens in pyosalpinx; or it is possible that the stenosis was congenital and that the secretion was sterile from the beginning.

Rokitansky ¹⁶ in this connection says: "We further occasionally observe a metamorphosis of the vermicular process produced by obturation which is analogous to dropsy of the efferent ducts of glands, and which is most apparent in the gall bladder."

It is to be noted in conclusion:

1. That in nearly every case of cystic distension of the vermiform appendix recorded there were no subjective phenomena arising from the condition, and that in the majority of cases it was discovered accidentally.

2. That when the cyst finds its way into the inguinal canal there is danger of causing its rupture by taxis, as actually happened in Van Hook's case.

3. The possibility of mistaking a large cyst of the appendix for a floating kidney must be borne in mind. In a thinner patient such a mistake might easily have been made in the case passing under my observation.

I introduce Fig. 3 into this article, both for the purpose of contrasting the size of the appendix shown in this figure and that shown in Fig. 1, and to give briefly the clinical history of a case which is somewhat typical of many that come to the abdominal surgeon for relief, and which formerly he failed to relieve because the appendix was ignored.

Mrs. S. is 28 years of age and has been married for ten years. Three children, aged respectively 8, 7, and 5. Began to menstruate when she was 13. Dysmenorrhea after the first year, which gradually increased in severity from year to year. The menstrual pains are shooting and cutting in character, extending through the back and down the limbs, becoming labor-like and bearing-down toward the end of the period. The blood is dark, stringy, and offensive. There is a purulent and offensive leucorrhea during the intermenstrual period. There is no specific history and no gonococci are to be found in the discharge. Has been much worse since her last labor, which was a severe one, though not instrumental. Has had two miscarriages since the birth of her last child, one at two

and the other at three months. Three years ago, while living in Detroit, she had an attack of appendicitis, which, though not severe, was attended by the classical symptoms of the disease. Her digestion has been much disturbed since that attack. During the last year she has been in the hands of Dr. F. E. Chase, of Cleveland, and while he has succeeded by combined local and general treatment in making her more comfortable, she is very much of a wreck. Dyspareunia is almost absolute, and the sexual appetite is entirely destroyed. She has constant backache and bearing-down sensations, which are made much worse by being on her feet. Alternate constipation and diarrhea. Marked menorrhagia. Has lost at least twenty pounds in weight and is very nervous. Complains of almost constant pain through the ovarian region. The appendix can be distinctly outlined by palpation as a hard, cord-like mass extending from a little below and inside of McBurney's point into the pelvis. The fundus uteri is retroflexed and bound down by adhesions. There is bilateral laceration of the cervix with subinvolution. The pelvic floor is relaxed, with concomitant cystocele and rectocele. The glans clitoridis is almost completely concealed by adhesions.

On November 4 of this year, after the usual preparation, the patient was placed upon the operating table and ether administered. The uterus was first dilated, curetted, and irrigated. The cervix was then repaired, which was followed by anterior colporrhaphy and reparation of the pelvic floor. After overcoming the adhesions of the clitoris and dilating the rectal sphincter, she was placed in the Trendelenburg posture and the abdomen opened by a medial short incision. The fundus was bound down by adhesions, easily overcome, as were the appendages of both sides. The appendix vermiformis was attached to the right ovary and closely adherent for its entire distance to the cecum. Both tubes were infiltrated, thickened, and impervious. The ovaries were so diseased that I did not deem it wise to leave either behind, especially inasmuch as the patient particularly requested that no chances be taken in an effort to conserve any portion of them. Both ovaries and tubes were therefore tied off with catgut and the stumps touched with carbolic acid. A subsequent microscopic examination of the ovaries showed them to be sclerotic, with here and there islands of caseous degeneration corresponding to Graafian follicles. The appendix, which was much infiltrated and thickened, was next dissected free, amputated, and the stump inverted

in the usual way. The mesenteric rent was closed with a running catgut suture. Two chromicized gut sutures were passed from left to right through fascia, muscle, and peritone-

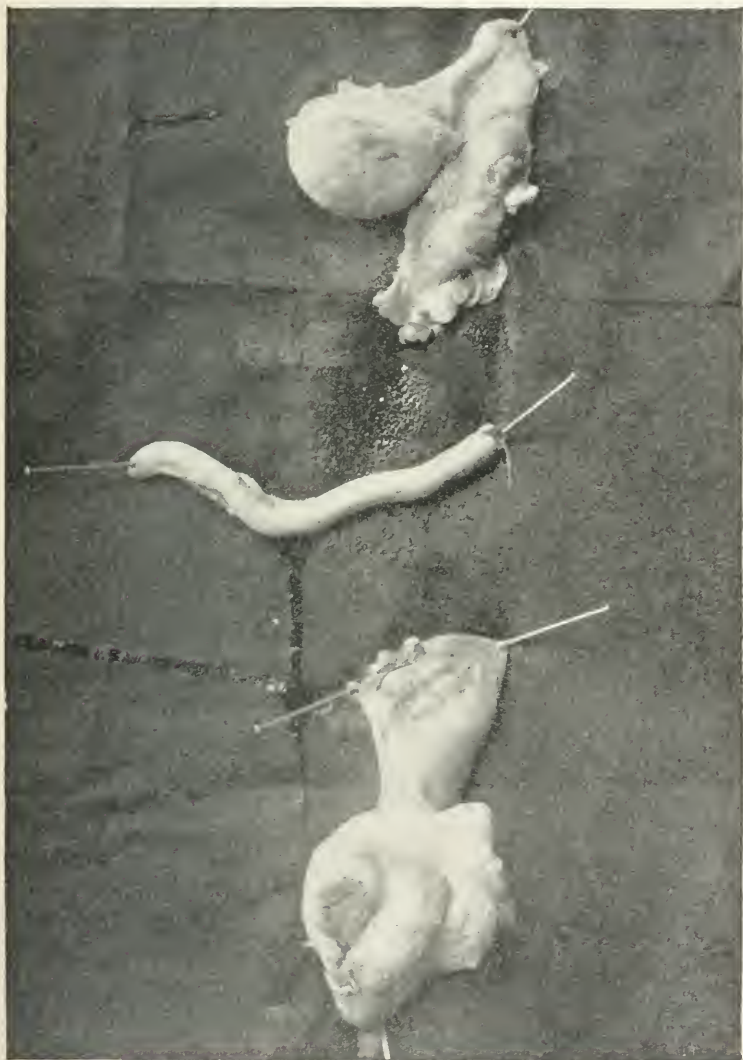


FIG. 3.—Case II. Tubes, ovaries, and appendix vermiformis.

um; were made to penetrate the fundus of the uterus posteriorly, and carried from within outward through corresponding structures of the right side. These, when tied, fixed the ute-

rus firmly in front. The kidneys were in normal position. A litre of normal salt solution was left behind in the abdominal cavity when the wound was closed with two running catgut sutures and a subcuticular silk suture. Catgut was used for all plastic work. The patient has reached the fifteenth day of her convalescence, which thus far has been uninterrupted, with a temperature not exceeding 100° F.

I shall expect this patient to get *well*, or at least as well as it is possible for any woman to become whose pelvis and abdomen have been for years the seat of organic disease. I record the case thus early in its surgical history for the reason that it happens to be the only one in my case record in which I have taken the trouble to secure a photograph of the appendix with the ovaries, and which I especially desired for the purpose of contrasting it with the appendix in Fig. 1. I have something more than one hundred cases in my record book in which disease of the appendix was found associated with various abdominal and pelvic lesions, the appendix in all instances being removed. I shall in the near future tabulate these cases for the purpose of making deductions. In several instances where the uterus and appendages were removed through the vaginal route, the appendix had to be subsequently removed from above. I can attribute many of my early failures in abdominal work to not directing attention to the appendix, the pain in the right side persisting, as well as the gastro-intestinal disturbance.

In this case the whole series of operations—divulsion, curetting, uterine flushing, trachelorrhaphy, anterior colporrhaphy, perineorrhaphy, adhesions of the clitoris, divulsion of the rectum, double salpingo-oöphorectomy, removal of the appendix vermiformis, and ventral fixation—required for their completion less than an hour's time. It was a particularly favorable one for rapid work, but no experienced surgeon ought to consume more than ninety minutes, under the most unfavorable conditions, in performing the same number of operations. It is a common practice with me, in addition to the operations enumerated, to overcome rectal lesions, when they exist, at the same sitting. I, of course, watch the patient as the work progresses, and should it become manifest that she will not tolerate too much punishment, I desist. But when the conditions are favorable it is a great comfort to the patient not to be confronted, upon regaining consciousness, with a "second" operation, which is always much more dreaded by her than the first.

It is even a greater satisfaction to the surgeon to feel that he has overcome all lesions in any way responsible for her ill health.

When several plastic operations are followed by a celiotomy I do not deem it wise, when the kidney requires it, to fix it at the same sitting.

It affords me pleasure to acknowledge my indebtedness to Edebohls for calling attention to the importance of correcting lesions of the appendix and abnormal mobility of the kidneys in doing gynecological work.

122 EUCLID AVENUE.

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A CASE OF TWISTED OVARIAN CYST.

BYA. LAPHORN SMITH, M.D.,
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THE following case is of especial interest owing to its resemblance to ruptured tubal pregnancy. The patient, Mrs. C., 28 years of age, began to menstruate at the age of 13, menstruation always having been very painful. She was married four years ago, but has never been pregnant. She was very well for nine months after marriage, although never very strong. She then began to feel as if her womb was down and was too large, and she began to have great pain in her left side. Last November she consulted a physician, who attended her until the following April without any improvement. She could not stand up to do her work, but was obliged to kneel upon a chair, and during the next three years she dragged along, suffering a great deal all that time and coitus being very painful. In August last her period was so painful that she had to go to bed for three days and she had several fainting spells. She then went to the country, where she felt a little better for the rest, remaining there until September, when she returned to town. Her next period was accompanied by severe pain and almost imperceptible pulse. On examination the uterus was found to be large and low down and retroverted. On the left side and behind an exceedingly tender mass was felt, about the size of an orange, which was thought to be either the left tube or the left ovary; the right tube and ovary could not be felt owing to the great tenderness on pressure, which made the abdominal walls rigid. She seemed very ill, temperature of 101° , but her pulse was very slow. It was difficult to nourish her on account of the constant vomiting, and she required from one to three hypodermatics a day, and even with these she would frequently scream with pain. On examining her again three days later a considerable change had taken place; the tumor was twice as large as before, and surrounded by what appeared to be a matting together of the intestines and pelvic contents, giving a board-like feeling to the touch.

Diagnosis.—I felt that I had one of three things to deal with: First, a tubal pregnancy with rupture into the peritoneum, with local peritonitis walling off the blood. In favor of this view were the severe pain, the very weak pulse, and the fainting spells when the flow came on in August, and against it was the slowness of the pulse. Second, it might be from torsion of an ovarian cyst, which would be accompanied by severe pain and shock, and great weakness of the pulse due to hemorrhage into the cyst. The peritonitis in this case would be due to the gangrene of the tumor, and the peritoneum endeavoring to nourish the latter by adhesions. Third, it might be a large and leaking pus tube, many of which attain the size of a cocoanut, which this tumor felt like. In any case it seemed certain that an operation was necessary, and so she was brought to my private hospital and her abdomen was opened. On making the incision a large, round, and almost black mass was seen, to which the bowels were everywhere adherent, although they were easily detached, and the tumor was lifted out without a rupture, until just as it was coming out of the incision it broke, showing that it was a cyst full of clotted blood, firm enough to stay in the cyst even after the latter was ruptured. The cyst was found to be twisted three times on itself from left to right, the left tube being twisted with it and almost black. It was certain that it was not a tubal pregnancy, as both tubes were clearly seen not to be larger than normal. The right ovary was also removed, because it was as large as a hen's egg and had a thick cortex. The uterus was then attached to the abdominal wall to prevent prolapse. The patient made a very easy recovery, almost devoid of pain; certainly at no time since the operation did she ever undergo anything like the suffering which she endured before. A curious fact, which, however, I cannot explain, was the appearance of milk in the breasts, to which the patient called my attention about two weeks after the operation, when she noticed that her clothes over the breasts were kept constantly wet, and by gently milking them there was no difficulty in getting the milk to come quite freely. It was not a clear watery secretion, but a rich, creamy fluid that came forth. The appearance of milk in the breasts of a young married woman who has not borne a child is generally considered strong evidence that she is pregnant or that she has miscarried. The patient has since been examined, and, although the uterus is still rather large, it is certain that she is not pregnant.

Causes of the Twisting.—The causes are said to be the influence of the growing pregnant uterus; emptying of the pregnant uterus; sudden alterations of intra-abdominal pressure, such as lifting; unequal growth of the tumor; movements resulting from a physical examination; and the use of corsets. But, as far as could be learned, none of these causes were at work in this case, unless it could have been the putting on of the corsets, the left half of which might twist the tumor around every time they were hooked.

250 BISHOP STREET.

TUBULAR ADENOMA OF THE RECTUM,¹
(PAPILLARY ADENOMA TUBULARE POLYPOSA.)

BY

JOHN B. SHOBER, M.D.,
Philadelphia.

(With two illustrations.)

Mrs. D., age 49, applied for treatment October 3, 1898, and gave the following history: Her general health was fairly good until two years ago, when she began to experience discomfort in the rectum—bearing-down sensations, tenesmus, a constant discharge of a thick mucus, and occasionally some bleeding after defecation. These symptoms have increased, and of late, at intervals, she has lost large quantities of blood from the rectum and she has experienced considerable pain. She is anemic and greatly debilitated. Rectal examination revealed a globular, semi-solid tumor, about the size of a small lemon, attached by a broad base to the left lateral wall of the rectum about two inches from the anal margin. She stated that at times the mass protruded from the anus during defecation. The diagnosis of villous tumor was made. Operation was advised, but refused.

On January 28, 1899, the patient applied again, requesting the operation. She had been steadily growing weaker from the constant mucoid discharge, the frequent hemorrhages (sometimes losing a pint at a time), and the almost constant

¹ Read before the Section on Gynecology of the College of Physicians of Philadelphia, November 16, 1899.

discomfort. She seldom experienced actual pain. The mass frequently protruded from the anus and was at times with difficulty reduced.

On January 30, under ether anesthesia, the tumor was removed. It was a sessile growth springing from the wall of the rectum, from a surface measuring one inch by one-half inch. The apparent pedicle was the dragged-out rectal mucous membrane, which was removed with the tumor.

The specimen is a typical example of so-called villous tumor of the rectum.

I am indebted to Dr. H. L. Williams for the following pathological report:

“*Macroscopical Examination.*—The specimen consists of a soft, polypoid, flesh-like mass, dark red in color, covered on the surface with innumerable fringe-like villous processes that are easily separated or torn away.

“The growth is attached to a firm band of whitish tissue which serves as a broad pedicle. The measurements are as follows: length, 8 centimetres; width, 5 centimetres; thickness, $3\frac{1}{2}$ centimetres; circumference in long diameter, $17\frac{1}{2}$ centimetres; circumference in short diameter, 12 centimetres.

“The pedicle measures $3\frac{1}{2}$ centimetres in length and 2 centimetres in width.

“On vertical section through the middle of the growth a distinct arbor vitæ arrangement is seen, the villous projections branching out from a central core pinkish in color and of rather firm consistence.

“*Microscopical Examination.*—Examinations of sections, made through the tissue perpendicular to the base of the pedicle, show a growth which appears to be composed almost entirely of tubular glands, separated by narrow and delicate septa of connective tissue, and lined by a single layer of slender columnar epithelial cells with nuclei placed at the base.

“On careful examination the structure is seen to be exceedingly complicated, and not, as at first appears, made up of simple tubular glands. The appearance is somewhat difficult to describe. We might aptly compare the outgrowth to the imaginary structure of a dense bush with an infinite number of small branches projecting in every direction—trunk, limbs, and branches all covered on their surfaces with a single layer of columnar epithelium; or we might describe it as a growth made up of an infinite number of tubular glands turned inside out. In other words, the structure is of the nature of a villous

outgrowth, the surfaces of the villi being covered with glandular epithelium in a single layer. The villi are so closely packed together that the spaces *between* the villi have the appearance of being the lumina of tubular glands. There is no doubt, however, that tubular glands are also actually present. They are located in the stroma of the villi, which they completely riddle, making a delicate skeleton of fibrous connective tissue which

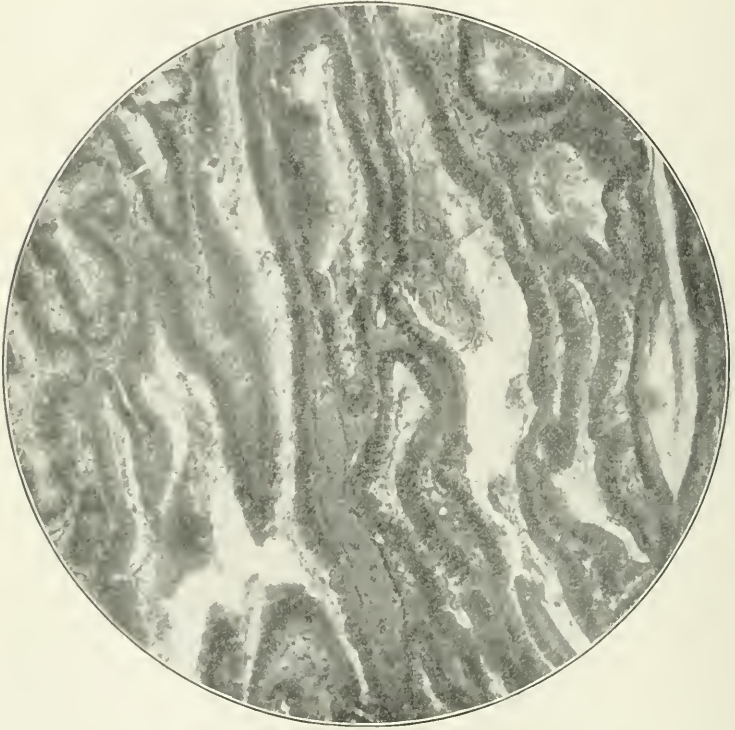


FIG 1.

is covered inside and outside with a single layer of slender, high columnar epithelium.

“While in most portions of the growth the epithelium remains in a single layer with nuclei located at the base, in some parts the epithelium is decidedly shorter, the nuclei have a tendency to move away from the base of the cells, and the cells themselves are proliferated into several layers, indicating an apparent tendency toward malignancy.

“The stroma of the villi is made up of fibrous connective

tissue and is richly supplied with thin-walled blood vessels, the lumina of which are packed with red blood corpuscles and a few leucocytes. Fine capillaries extend into the most delicate septa.

“*Diagnosis*.—Papillary adenoma tubulare polyposa.”

These tumors are very rare, only 36 cases having been observed by the following well-known authorities: William and

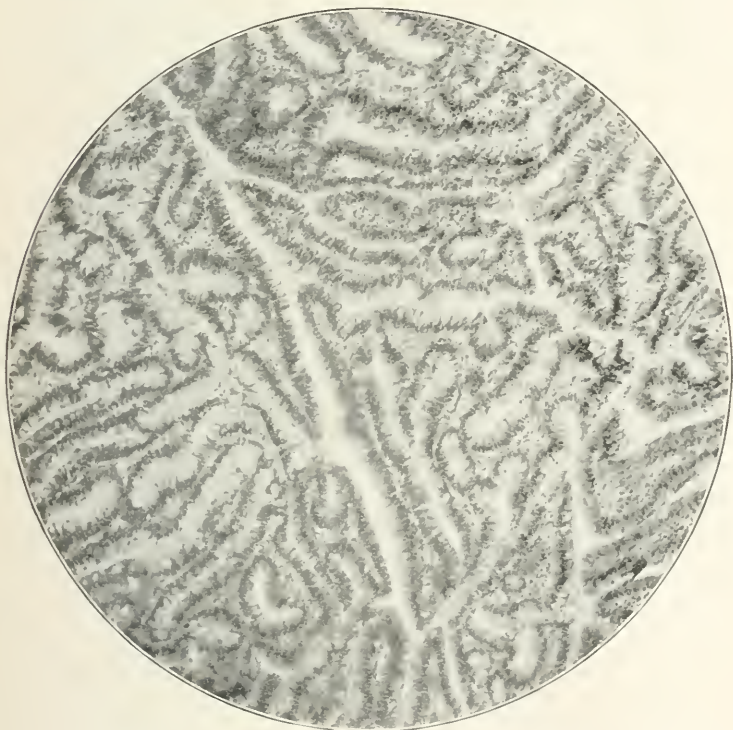


FIG 2.

H. W. Allingham, 17 cases; Gowland, 3; Goodsall, 3; Cripps, 2; Bryant, 1; Cook, 1; Alfred Cooper, 1; Symes, 2; Gosselin, 1; Mathews, 2; Van Buren, 1; and Quain, 2.

This form of tumor is found only in adults, and usually in old people. It is, however, a well-recognized and distinct type of tumor, and according to Kelsey¹ should be classified either with the polypi or with the warty growths. According to Cripps it stands on the boundary line between innocent

¹ “Diseases of the Rectum and Anus,” 3d ed., p. 264.

polypus and the malignant adenoma. It has been variously termed as granular papilloma, Gosselin; villous tumor, Curling; villous polypus, Esmarch; "peculiar bleeding tumor," Quain. Kelsey (*loc. cit.*) says that it consists of a hypertrophy both of the villi and of the follicles of Lieberkuhn, with a centre of connective tissue and generous vascular supply; and he quotes Dr. A. Clark as saying that the tumor is essentially an outgrowth of dense areolar tissue, permeated by blood vessels, and assuming a papillary form, the papillæ being flattened and curled so as to represent hollow cylinders and being clothed with layers of epithelium, the free layers being cylindrical.

Cripps¹ says that the structure of these growths is identical with that of adenoid polypus. It has also been well described as a lobulated spongy mass, with long, villus-like processes studding its surface.

The question of malignancy in connection with these tumors is as yet unsettled. They have been known to break away from their attachment to the bowel and to be passed, Nature thus effecting a cure. When this does not occur they will usually cause death, due to exhausting hemorrhages, and are all, therefore, in a clinical sense malignant. Pathologically they may become carcinomatous². Only two such cases, however, are reported. There is no tendency to penetration of the epithelial cells into the deeper structures, but this may occur, the epithelial cells invading and proliferating in the stroma of the villi, thus giving rise to carcinoma.

112 SOUTH SEVENTEENTH STREET.

LABOR COMPLICATED BY CONTRACTED PELVIS, LARGE FIBROMA OF UTERUS, AND ECLAMPSIA.

BY

EDWIN K. BALLARD, M.D.,

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Baltimore, Md.

DURING the afternoon of April 11 I was summoned to see A. J., a mulatto, æt. 37 years, the messenger stating that the patient was in confinement and very ill.

¹ "Diseases of the Rectum and Anus," second ed., p. 299.

² Allingham: "Diseases of the Rectum," sixth ed.

On arriving at her house the patient was found to be in charge of a midwife, who had been waiting a number of hours for something to develop, and who seemed to think that, by waiting sufficiently long, labor would terminate spontaneously. She informed me that labor pains had been feeble, that the mouth of the womb was not open, and that about half an hour previously patient had suffered a violent convulsion. On approaching to examine the woman I found she was partly conscious but not rational, and several peculiarities in the case immediately presented themselves. The woman was markedly rachitic, with deformity of principal bones, tibiæ and femora being strongly curved, and a pronounced lordosis in the sacro-lumbar region. Palpation of abdomen showed that entire pelvic and abdominal cavities were filled by a large tumor. In the right hypochondriac region was a bulging mass about the size of a cocoanut, apparently connected with the larger growth, but separated from it by a sulcus. On careful auscultation no sounds of fetal heart were audible, nor was any fetal motion appreciable, neither could a uterine souffle be detected. There were small but dark areolæ, without any enlargement of Montgomery's glands, and a pigmented line running down the abdomen. By vaginal examination the os was found dilated only sufficiently to admit one or two fingers, and there was no excess of vaginal secretion. Pushed up into the uterus, the examining finger could feel nothing that even simulated a presenting fetus. Uterine neck was not obliterated, and a slight protuberance was felt along one margin, suggesting an intrauterine growth. The pelvis was found to be contracted antero-posteriorly. From the shape of the tumor exteriorly it appeared that if the woman was pregnant the case was one of transverse presentation, in which the fetus was too high up out of the pelvis to be reached by the examining finger in vagina. By abdominal examination no fetal parts could be detected. If the lower tumor contained a child, what was the nature of the mass protruding from under the ribs? And, finally, the question arose, was the patient pregnant at all? She was unconscious and could give no account of herself, but her mother stated most positively that she herself had felt the motions of the fetus on a number of previous occasions.

Perceiving that labor could by no possibility be terminated through the natural outlet, I so explained to the family, and stated that the operation of opening the abdomen would be

necessary to effect delivery and give the patient a barely possible chance for her life.

Dr. C. H. Riley within an hour kindly saw the case with me, and fully agreed upon the necessity of the operation suggested as the only means of delivery, as well as affording a means of positive diagnosis. Soon after his entrance into the room the woman went into another strong convulsion. From 3 P.M. of that day till 10 P.M. she had twelve spasms. Family stated that her last urine had been passed at 2 P.M. Upon catheterization at 9 P.M. no urine was found. Pelvic measurements, as determined by Dr. Riley, were as follows: external antero-posterior diameter, $17\frac{1}{2}$ centimetres, or about 7 inches; distance between anterior superior spines, 24 centimetres, $9\frac{1}{2}$ inches. Internal antero-posterior diameter measured by finger $2\frac{3}{4}$ inches, as well as could be determined, the presence of the mass in the pelvis preventing the promontory of sacrum from being quite reached. As subsequently proved at operation, the actual measurement of true conjugate was $2\frac{1}{4}$ inches. The length of the woman was 4 feet 10 inches.

At 10 P.M. I operated, assisted by Drs. Riley, Yost, Wells, and A. D. Atkinson, who had been called to the case simultaneously with myself. Through a long incision the tumor was exposed and found to be uterine, but did not present the appearance of a pregnant uterus, lacking the dark hue of that condition. The large nodule felt before operation over the liver was found to be part of the main growth. No indication of a fetus could be felt, and it became more of a question than ever as to whether there was a fetus in the case. The whole mass was lifted from the abdominal cavity, the broad ligaments ligated and the tumor amputated through its base, hemorrhage controlled, and stump sutured.

On removal of tumor the upper part, which had formed the mass projecting under edge of ribs on right side, was incised and found to contain a placenta and a dead fetus weighing 6 pounds, the whole tumor and placenta, exclusive of fetus, weighing 20 pounds. Patient was profoundly shocked, but after stimulation and transfusion of normal salt solution rallied, but did not regain consciousness. Next day she had four more spasms and the coma continued. All efforts to stimulate her kidneys to action were unavailing, and she did not secrete a drop of urine from 2 P.M. April 11 till 5 P.M. April 12, when she died of uremic coma. Her case seems worthy of record as furnishing a most unusual combination of serious complications of labor.

It seemed unaccountable that conception should have occurred in the presence of a uterine growth which must have been of considerable size before marriage. And it was also most unfortunate that the patient could not have had the benefit of a timely and perhaps life-saving operation, instead of one that was a desperate chance in a sudden emergency and done under most unfavorable circumstances.

855 PARK AVENUE.

THE CAUSE AND CURE OF CONVULSIONS AFTER LABOR.¹

BY

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THE occurrence of convulsions in the adult, an event always of grave import, is never more alarming and discouraging than immediately after the termination of labor. If it take place during the later stages of labor, the physician has at least the comforting probability that it is due in some way to the child's presence *in utero*, and that delivery, either natural or artificial, will cause the cessation of the convulsive tendency. If it occur after labor has ended, he can ascribe it to no such physiological irritant, but is in the dark as to both its causation and the proper means of relief, and is oppressed, at this time which should be full of happiest anticipations, with the gloomiest forebodings as to the issue of the case. Therefore, although so much has been written concerning the convulsive seizures of pregnancy and the lying-in chamber, I make no hesitation in presenting to you the following case, which exhibited the disorder in its gravest aspects, yet terminated in full health; with some inferences as to the possible causation and prevention of such attacks.

The patient, a healthy-looking woman of 23, in whose home I had for some time been family physician, and whose domestic surroundings were of the happiest description, the older people taking all unnecessary care from her shoulders, came under my care on March 7, 1898, eight months after her marriage; being pregnant thirty weeks, as reckoned from the beginning

¹ Read before the Baltimore Medical and Surgical Association, November 13, 1899.

of the last menstrual period. She stated—and I have never known her to be untruthful or to exaggerate facts—that she had never taken a doctor's prescription in her life; had never had any disease except measles; had never had greater disturbance at menstrual periods than could be met by resting a little; had never had leucorrhea nor any sign of dropsy. She had during her pregnancy had a little nausea on two or three occasions, and sometimes vomited. For two months she had had occasionally, on lying down, a twitching of lower limbs which would compel her to sit up, when it would pass away. She had to take aperient pills two or three times a week. She slept well; appetite in last two weeks not so good. Urine at the date of this first visit was normal, color natural, subacid, specific gravity 1010; cold nitric acid gave no cloud; microscope showed no sediment at all. In fine, my investigations of the patient, fortified by her general appearance, made me think I had an ideally healthy parturient to deal with.

The only possible source of danger lay in the rather small build of the patient. On May 12 I made external measurements of the pelvis, finding the interspinal $9\frac{3}{4}$ inches, that between crests 11 inches, the external conjugate $7\frac{1}{2}$ inches, or a deficiency of about a half-inch in each. Vaginal examination was refused. The child's head was well fixed in the pelvis, the buttocks up near the gall bladder. The patient had no dropsy; passed urine which looked normal; had normal appetite and sleep; daily stools; felt no discomfort anywhere in body; walked out each evening.

As the date of expected labor passed (May 17) I felt some anxiety lest an overgrown baby might, in the probably somewhat narrowed pelvis, cause serious parturition trouble. On the evening of May 26 I found labor in progress. The head, in left occipito-anterior position, had not engaged deeply, as in normal first pregnancy, but was movable at the pelvic inlet. Though there was little amniotic fluid, the uterus reached high to the ensiform cartilage. There was a distinct souffle heard over both sides of the lower uterine segment. The patient lay propped up on pillows, unable to lie flat. (This high uterus, vessel souffle, and discomfort I suspect all pointed toward a large child.) The fetal heart beat normally at 140. The first stage was carried through by the uterus without considerable aid from the abdominal muscles and without excessive pain. The lower parturient canal was dilatable, with soft, moist walls. The cervix was thin and distensible. The urine was free; the bowels had been moved daily by the pills till labor came on,

and the patient considered the movements quite satisfactory, having been warned of the importance of this daily evacuation. The patient repeatedly vomited bilious matter throughout the whole of the first and second stages of the labor—a symptom which I disliked, but which I thought might be due to the pressure of a large child on the upper bowel.

At 4 A.M. the cervix was wholly dilated and the bag of waters projected sausage-shaped into the lower vagina. The pains became less frequent, the patient sleeping between them. I broke the membranes, and the pains became stronger and more frequent. The head came down with excessive slowness, in normal position and well flexed, until the scalp parted the vulva during the pains, showing a scalp area of about two and a half by one inch in diameter. It retired well between pains, came strongly down with them, but, while it ceased to make headway, the patient's agony increased and became continuous between the pains. I tried to reach the chin with finger in the rectum, but even with scalp parting the vulva the head seemed to the rectal finger endlessly long, and I could not, after thrusting in the whole finger, reach beyond the hairy scalp, and so could not use it in aiding delivery.

At 6 A.M. I found the fetal heart beating irregularly at 70. Dr. Hundley kindly giving me his advice and chloroforming, I delivered the child with forceps, putting three sutures into the resultant perineal tear, which reached to the rectal muscle and about two and a half inches upward into the vagina. The head was very large and covered with a permanent suit of very long hair. The family reported child's weight at $12\frac{1}{2}$ pounds. He is still a finely thriving and very vigorous child. The mother had very little bleeding during delivery, and none afterward except normal lochia. Her uterus contracted well, her pulse and temperature were good. The whole labor difficulty was apparently due to the very large size of the child's head and the small pelvis, which might, however, have let a smaller, softer head pass easily.

At 4 P.M. of this same day I was summoned in haste, as the mother had had a convulsion. I found that she had complained of headache during the middle of the day, but had slept off and on naturally. She told me later that the spell occurred because she "could not bear the headache." At 4.30 P.M. the temperature in axilla was 100.3° , pulse 120 and hard, respiration 28. I drew off the urine at this time, finding it very abundant, acid, of normal color, specific gravity 1010, containing neither casts nor cells under microscope, but giving,

both with the cold nitric acid and with the heat and acid tests, a very slight opalescence of albumin. This seemed to me to be, not the albuminuria of nephritis, but that following convulsive states. The convulsion had been a full one, with tongue-biting. She remembered only the twitching of the right arm with which it began. I gave her a hypodermatic of morphia one-eighth of a grain, atropia one-three-hundredth of a grain.

At about 6 o'clock Dr. Hundley saw her with me again. We found her conscious, with persistent headache. It seemed to us that the kidneys and parturient tract were not at fault, but that there must be an acute intestinal poisoning of a nervous system worn out with a hard labor. We gave morphia one-quarter of a grain, atropia one-one-hundred-and-fiftieth of a grain hypodermatically, and directed that thirty grains of chloral and forty grains of potassium bromide should be taken every two hours, beginning at 8 P.M. Dr. Hundley then returned home. Under these remedies the convulsions returned, seven or eight occurring between our consultation and midnight. All were general and violent, and at one time there was a "status epilepticus" (consciousness not returning between the convulsions), which yielded to chloroform inhalation. Vomiting occurred from time to time, so that it was uncertain how much of the chloral mixture was retained. At 11 P.M. (a convulsion having occurred after the chloroform had restored consciousness) I bled at the bend of each elbow, as had been agreed on at the consultation, but, being inexpert in the practice, got altogether not more than three ounces of blood. This bleeding did much to soften the pulse and helped to quiet the tendency to spasms. I believe there were no convulsions after the bleeding.

Believing that the patient would not be safe from the convulsive tendency until free bowel cleansing was obtained, I had given at 7.30 P.M. a half-drop of croton oil in sweet oil on the tongue, and repeated this dose at 8 P.M. Later I had placed five grains of calomel in powder on the tongue. At 1 A.M., the convulsions having ceased, but the condition of the patient still threatening their return, I gave to the now conscious patient a drop of croton oil in improvised bread pill on the tongue, and at 4 A.M., the stomach having quieted, a strong vegetable cathartic pill. At about 6 A.M. the bowels acted gently for the first time, with a foul-odored passage, and two or three easy passages followed at intervals during the forenoon. The headache and nausea hardly recurred at all after

this purging, and it seemed to render permanent the good effect of the bleeding. I kept up a gentle aperient action with less powerful drugs during this and the following day, the temperature standing about $99\frac{1}{2}^{\circ}$, the respiration being about 20, and the pulse 108 and still slightly hard and nervous.

On the third day the milk came freely in full breasts, and she thenceforth for many months wholly nourished her vigorous child on the breast with great satisfaction to both parties. The urine continued free and seemed in every way normal to the attendants. From the fifth day for about two weeks there was a temperature rise, which was considered by me and by an experienced adviser to be a simple "surgical fever" from the laceration of the cervix and perineum, and from a tear, made apparently by the forceps blade, running along the side of the vagina near its roof from a point close by the vulva to the cervical region. It is separate from the perineal tear. Under antiseptic washing of cervix and vagina the temperature soon came to normal as the parts healed. The lochial discharge was at no time offensive. A year after this confinement I met the patient and was much pleased with her vigorous appearance. She was feeling perfectly strong and looked a rosy-cheeked, healthy girl.

Reflections upon the Case Presented.—There are two points in the case which seem worthy of especial notice. First, the causation of the attacks. I think it is pretty well settled that for convulsions in the adult (I am not sure that this is not true of epilepsy, which is not now under consideration) there must be usually at least two coincident causes: one, which predisposes the nervous system to excessive action; the other, an immediate, exciting cause. The predisposing cause is, I think, not usually able of itself to bring on a convulsion, as it is a comparatively long-existing condition and the nervous system has gotten used to it. This predisposing cause may be an inherited state of nerve tissue or of nerve nutrition; or may be an acquired irritation of the nerve centres, as a chronic inflammation, the disturbance left by an old wound, the retention materials of a long-standing nephritis, the unwholesome state involved in chronic alcoholism, or some other blood-polluting or nerve-exhausting cause of considerable duration.

When to this predisposing cause the immediate cause is added, a convulsion occurs, and convulsions continue to occur as long as this immediate cause acts, when they cease and the patient goes back to his chronic state with its original symptoms, having another onset of convulsions only if the imme-

mediate cause again comes into play while the predisposing cause still obtains. Neither the predisposing cause nor the immediate cause can of itself, as a rule, occasion convulsions. If this is true, as I believe it is, it is an extremely important fact as concerns the relief of the convulsions, as I will explain when I speak of treatment. Among immediate causes may be classed extreme pain or agony, (perhaps) exsanguination by excessive blood loss, mental shock, acute nephritic disorders (perhaps), a very foul atmosphere, and acute stercoremia. I have records of several cases in which the predisposing cause was nephritis and the immediate cause acute stercoremia, several others in which the predisposing was chronic alcoholism and the immediate cause the acute stercoremias of influenza, and one case where the predisposing cause seemed to be nephritis and the immediate cause the agony of a non-progressing severe second stage of labor where the head failed to engage well in the pelvic cavity.

In the case which I have now brought before you I believe that the predisposing cause was the nerve exhaustion of a severe, protracted instrumental labor, and the immediate cause an acute stercoremia. Although the grandmother and an aunt have sensitive kidneys (showing albuminuria on occasion), the patient in the history I have given shows, I think, no clear sign of nephritis. Her normal kidney and health record in pregnancy; the absence of sediment and of more than the faintest nebulosity in the abundant urine, tested after a severe labor and a convulsion; and her perfect lactation record, with return of fine general health and ruddy beauty, seem to contraindicate nephritis. There was no sepsis from the genital tract, as shown by the wholesomeness of the discharges, the quick healing of her extensive wounds, the perfect, full lactation, the rapid return of general health. Moreover, the short interval after labor, in absence of foul discharge, pointed away from blood sepsis from this source. The patient's general nervous system was, and is, excellent in its stability. She certainly was greatly exhausted by the hard labor, as every woman must be as concerns nerve force.

As the labor was over and there was no pain nor sense of discomfort and no abnormal oozing of blood, I do not believe the immediate cause of the spasms was connected with the parturient tract or the effects of labor shock. There was no emotional strain brought to bear upon the patient after labor. The room was well ventilated, it being daylight. There was, however, some disorder in the digestive tract, as shown by the

continual bilious vomiting during the labor; and there was the expulsion of a very foul stool (coincident with marked relief from the convulsive disposition, as shown by hard pulse, headache, nausea) in a patient whose normal accumulations in the rectum had been daily removed by her purgative pills. It may have been an old decaying accumulation in the cecum, whose poisons got sudden access to the blood stream during the exhaustion and circulatory relaxation following the emptying of the uterus. Croton oil will remove such accumulations, as I have many times observed, when ordinary purges pass by them into the rectum.

The other point of interest in the case is the treatment used. Bold therapeutics is as much demanded in vital emergencies as is gentleness in ordinary cases. I believe that with the ordinary measures advised by some standard text books my patient might have died. (Her only hope would have been the possible self-limitation of convulsive states, which seems occasionally to occur.) An authority of some years back, Leishman, says of postpartum convulsions: "Full doses of chloral or opium, the administration of chloroform, cold to the head, perfect rest and quiet, and the emptying of the bowels, if necessary, by a simple enema, are the main points to be attended to." Lusk, who is still an authority, and usually a wise guide, says: "In the treatment of convulsions during the childbed period the agents used should be opium, chloral, veratrum, or digitalis. Chloroform and venesection should be employed with extreme caution, if, indeed, they are ever entitled to confidence at that time." The only agent worthy of consideration in the above lists of remedies that I did not try was veratrum viride. It was mentioned by Dr. Hundley, but, having no experimental acquaintance with it, I preferred the drug in which I had learned to trust for softening of the pulse and stoppage of the convulsive status. Veratrum is certainly a drug which acts, when it acts, along very dangerous lines. It has, I learn from text books, to be vigorously pushed until heart-weakening begins, and then tends to produce emesis. It is evident that the amount of such a drug absorbed from the stomach by a patient already frequently vomiting is very uncertain, and it is clear that if there was, as we believed, a poisoning mass in the large bowel, veratrum could not cure by simply lowering arterial tension. The same is true of blood-letting, which latter, if moderate, goes well with purging; and, indeed, the old-time doctors so used it. I should not care to give a strong purge after depressing the pulse and heart by

veratrum. Hot baths were undesirable, as favoring hemorrhage; and high enemata were not readily attainable nor likely to be free from harm in a patient just over a hard forceps labor and with a deeply sewn perineum. On careful review of the case I believe that venesection sufficient to lower arterial pressure by nerve reflex, and stopping well of exhaustion and heart weakness of large blood loss, with croton oil just sufficient to carry off the septic mass, was the correct treatment for stopping the convulsive tendency. With a less robust parturient I would, of course, use still greater care not to excessively weaken the heart. I am inclined to think that however valuable morphia may be in convulsions from other sources, in those from fecal poisoning it is either inert, of very brief benefit, or positively harmful in rendering the intestines still less ready to part with their poisonous contents.

I have determined in future, whenever I have reason to believe that a patient is on the verge of incipient labor, to advise her to take a good dose of castor oil, followed by such other simple measures as will insure a thorough cleaning-out of the large bowel. The possible bringing-on of labor at this time by the purge would be no disadvantage, and the additional security against complications of intestinal origin would compensate for the nastiness of the dose. Especially is this desirable in cases where for the daily stool it has been deemed necessary to take one of the milder aperient pills at bedtime each night.

THREE CASES OF ECTOPIC GESTATION.

BY

HENRY J. KREUTZMANN, M.D.,
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AND

LOIS NELSON, M.D.,
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(With four illustrations.)

THE diagnosis of extrauterine pregnancy is frequently made at the present time. Very often after operation the pathological and microscopical evidence of the correctness of the diagnosis is brought forward. Some unusual features that were

observed in three cases which are herewith reported may justify their publication. These cases came under my observation during the year 1899 at the German Hospital.

CASE I.—Mrs. S., æt. 23. Menstruation: first at 13 years of age; every three weeks, four days at a time; discharge profuse and dark; on the first day of the flow severe pain. Since marriage, pain has become decidedly lessened. Last menses August 10. Patient married five years; one female child, 4 years of age; labor normal; mastitis right breast; nursed nine months. General health has always been good. Prior to the present attack there has been a constant “drawing” pain in right side and back; this dates back to the birth of the child.

Present Illness.—August 22, while patient was sitting quietly upon a chair, agonizing pains commenced in the abdomen, of a bearing-down character. During a period of four weeks the pains recurred at intervals of two or three days. September 22 a hemorrhage per vaginam commenced; the discharge was dark, clotted, and very offensive. On the evening of the 22d a lump, looking like a membrane, came away. Next day a lump, which the patient describes as looking like a piece of kidney and of about the length of a finger, was passed. In the interval between September 23 and October 3 the flow continued interruptedly. October 3 the patient was conveyed to the hospital. She had no subjective signs of being gravid; temperature 101°, pulse 104.

Uterus small and immovable; pushed to the left, forward, and upward. Right side of pelvis presents a round, fluctuating tumor, reaching half-way to the umbilicus and back to the cul-de-sac; left side appears to be normal. Diagnosis was left uncertain between tumor of the ovary and ectopic gestation.

October 7, celiotomy. Incision in median line. There was found a tumor, bluish in appearance, attached to the right side of the uterus. The right tube remained on top of it. At the uterine end the tube was small, but about an inch from the uterus it gradually grew as large as a thumb and bluish; it disappeared in the tumor.

The tumor was adherent to the broad ligament; it was easily peeled off, clamped, and cut away. During manipulation it was ruptured and dark, liquid blood escaped; a number of blood clots were removed. The arteries were singly ligated with catgut. Then the cut in the broad ligament was united with catgut, and the uterine end of the tube was buried under the peritoneum. Left ovary and tube were found to be normal,

only there were a great many cobweb adhesions between the tube and ovary and the pelvic peritoneum, which were separated and cut away. Abdomen closed in tiers. Recovery was uninterrupted. Patient left the hospital October 31, 1899.

Pathologist's Report.—"The specimen consists of right adnexa and some loose blood clots. Fallopian tube is 9 centimetres long; its uterine third does not admit probe and is three-fourths of a centimetre in diameter; its abdominal two-thirds is patulous and $1\frac{1}{2}$ centimetres in diameter. Mesosalpinx is thickened and closely adherent to tube. At its abdominal end tube opens into a large, ovoid sac 10 by $7\frac{1}{2}$ by 5 centimetres in diameter. This sac is covered externally by thickened, ragged tissue, evidently the distorted mesosalpinx, and is irregularly

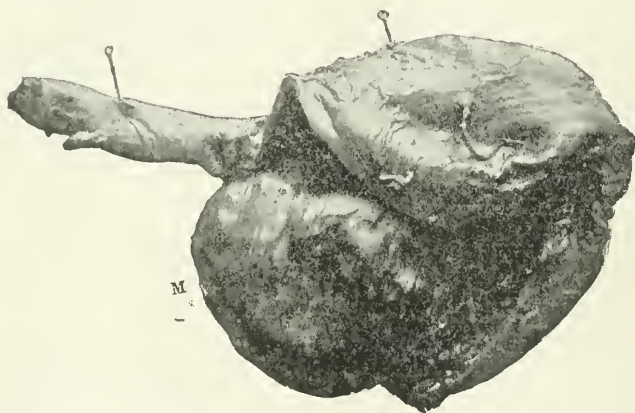


FIG. 1.—Case I. Tubal abortion. Inside view. M, mole.

sacculated by bands of this tissue. Its internal surface is rough with the remains of adherent blood clots; and attached to this surface at its inner end, superiorly, is an ovoid, organized blood clot $6\frac{1}{2}$ by 4 by 3 centimetres in diameter. The inner half of sac is thick, firm tissue, and ends on the internal surface in a thick, circular, firm band, this much of the sac being apparently tubal tissue. The outer half of sac is very thin and friable. Attached to the posterior inferior surface of sac externally is a normal ovary.

"*Microscopical Examination.*—Section of the uterine end of Fallopian tube shows small round-cell infiltration of mucous membrane and extensive polypoid proliferation, with the formation of follicles, which are mostly lined with a single layer of

columnar epithelium. The muscular and serous coats are normal and the lumen open. Section from the inner part of sac shows this to be Fallopian tube, with extensive small round-cell infiltration of all its coats. Its mucous membrane shows again polypoid proliferation, with much heaping-up of epithelial cells, producing a glandular appearance. There is great hypertrophy of the muscular coat and wrinkling of the serous coat.

"Section of the outer, thin part of sac shows only fibrous connective tissue with many newly formed blood vessels and a few muscle fibres.

"Section of the tubal part of sac, at the point of attachment of the ovoid, organized blood clot, shows small round-cell in-

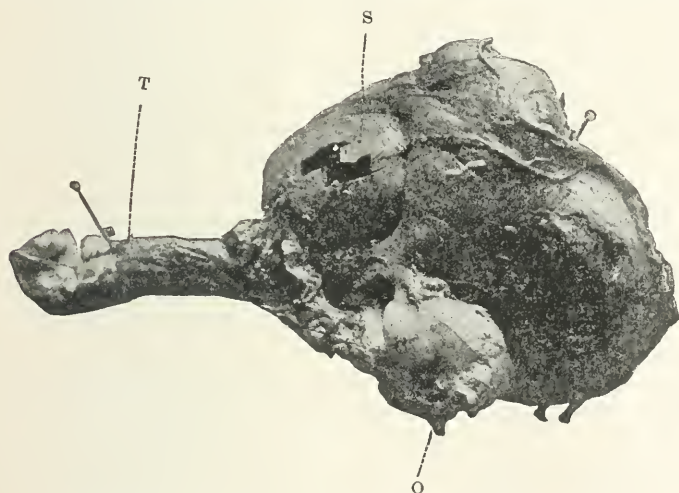


Fig. 2.—Case I. Tubal abortion. S, site of mole; T, tube; O, ovary.

filtration of all its coats, the muscular coat much thinned, in some places no muscle fibres being present. The mucous membrane shows great increase of blood vessels; its epithelium in many places is gone, and where present the cells are flattened and the cell boundaries often indistinct. Penetrating the mucous membrane and overlying it are large round and oval decidual cells, irregularly placed; with these are also chorionic villi, many of these being partly necrotic in the centre and showing much heaping-up of epithelial cells in the outer layer, and also some giant cells, some of these being free in the intervillous spaces.

"Section of ovary shows normal ovarian tissue.

"Diagnosis: Chronic follicular endosalpingitis; tubal abortion."

CASE II.—Mrs. L., æt. 25. Menstruation: first at 14 years of age; regular, twenty-eight days; duration, four or five days; quantity normal; no pain. Last menstruation August 26, only one day. General health has always been well. Married two years; no children; no miscarriage.

Present Illness.—On the evening of July 26, while at the theatre, she was attacked by a sudden and very severe pain in her abdomen which she can locate in no particular spot. She was overcome with weakness, felt suddenly hot, a sweat broke out, and she was with difficulty able to leave the building. Hot-water applications relieved the pain somewhat, and next morning she arose at the usual time. She was too weak, however, to continue up, and took to her bed again. During the interim between July 27 and September 14, the date of her admission to the German Hospital, she was alternately on her feet and in bed. At intervals she was attacked by the same pain that overcame her while attending the theatre. There were no discharges, but the patient's weakness was extreme. September 12 sudden pains, more violent than any that had preceded them, manifested themselves. The patient was completely "doubled up" in agony. September 14 the patient was brought to the hospital. She never experienced any signs of pregnancy.

Status.—September 17, temperature 102°, pulse 120. The abdominal walls are extremely painful to touch; a mass is felt from the outside, reaching close to the umbilicus, rather diffuse, filling the whole of the suprapubic region. The uterus is found pushed forward, small, immovable. Appendages cannot be mapped out; the Douglas cul-de-sac is filled with a very sensitive infiltration, which is irregular, hard in some places, and in others giving the sense of not very distinct fluctuation. The diagnosis of periuterine hemocele after ruptured tubal pregnancy is made. The treatment was entirely expectant. The fever subsided; pulse became lower; the diffuse mass became more distinct and smaller; pain on touch persisted. The examination through the vagina showed only little change; it appeared as if fluctuation became more apparent. It was decided to operate through the vagina.

September 28, after careful preparation, the Douglas cul-de-sac was exposed, a transverse incision made, the vagina detached, and a trochar pushed into the presenting, bulging

mass. Thick, dark blood escaped. The cul-de-sac was then entered with the finger, and it was found that the uterus could be very well felt and mapped out after detaching it from the surrounding tissue. A free space was thus made between the uterus and the mass, which latter gave to the finger the impression of an ovarian tumor; it was therefore decided to remove this tumor through an abdominal incision above the pubes. This was made and a dark-red tumor presented itself, part of which was entirely free; the lower segment, however, was adherent. In order to reduce it in size, a trochar was pushed into it; only dark blood escaped. It was then ripped open with the finger and a good deal of coagulated blood removed. The enucleation of the tumor was done by beginning the separation from the left side and from the uterus, working toward the upper end of the broad ligament. The cul-de-sac was entered and the tumor without great difficulty freed until the upper end of the broad ligament was reached; here were found very close adhesions with the cecum, and it was discovered that the thickened vermiform appendix was matted with the tumor. Separation of the cecum had to be done with extreme care. Some shreds of the tumor remained on the surface of the intestine; in other places the peritoneal covering of the cecum was accidentally removed, requiring a number of fine catgut stitches over the intestine. The appendix was removed with the thermocautery after ligation. The most conspicuous feature of this enucleation was that all the tissues involved were extremely friable, the tumor as well as the tube and ovary; besides, everything was indistinctly mixed up. The broad ligament was tied; several bleeding vessels were caught and ligated.

The left ovary and tube were found to be adherent everywhere; they were simply freed from the adhesions, and, being normal, were left *in situ*. There was a very free hemorrhage from the surface of the uterus where the tumor had been detached; also in the Douglas cul-de-sac. Tamponade drainage was therefore made, and a strip of iodoform gauze brought out through the vagina and another through the lower end of the wound. The abdomen was quickly closed with a number of through-and-through silk sutures, the lowest suture being left untied. The patient stood the operation very well.

Recovery was uninterrupted; in the first few days after operation the pulse ran very high, 160; patient was very weak, but soon everything was well; she left the hospital October 26.

Specimen.—"The specimen consists of right adnexa, a large cyst, and vermiform appendix. Fallopian tube is $6\frac{1}{2}$ centimetres long, with its uterine fifth apparently closed, and its outer four-fifths dilated and correspondingly thinned. Attached to the internal surface of this dilated part of tube is an ovoid, organized blood clot 6 by 4 centimetres in diameter. The right ovary is separate from the other parts of specimen and of normal appearance.

"The cyst is irregularly ovoid, 15 by 9 centimetres in diam-

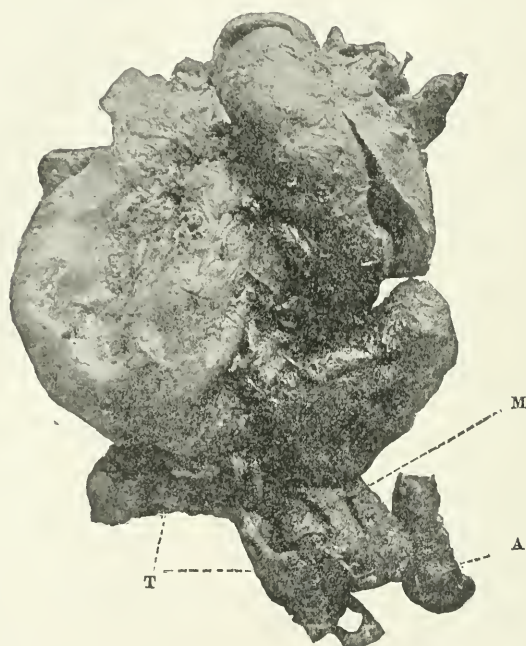


FIG. 3.—Case II. Tubal abortion and tumor of ovary. M, mole; A, appendix vermiformis; T, tube.

eter, and presents one main sac with a smaller communicating one. Its walls are much sacculated, very friable, and contain numerous small cysts filled with blood and gelatinous substance; walls vary in thickness from $\frac{1}{2}$ to $2\frac{1}{2}$ centimetres. Main cyst was filled with blood clots, which have been removed. Vermiform appendix is 5 centimetres long, $1\frac{1}{2}$ centimetres in diameter, and shows thickened walls.

"*Microscopical Examination.*—Section of Fallopian tube just before its dilatation shows its lumen nearly closed; its mucous membrane well preserved, even the cilia of the epithe-

lial cells being present in many parts, and no proliferative changes. Its muscular coat shows extreme hypertrophy, and its serous coat moderate hypertrophy with wrinkling.

"Section of Fallopian tube at point of attachment of its contained blood clot shows thinning of muscular coat; changes of mucous membrane similar to those already described of placental site in Case 1; decidual cells and chorionic villi, some of these being necrotic.

"Section of ovary shows normal ovarian tissue.

"Section of wall of cyst shows fibrous connective tissue and numerous small cysts, some of these lined with a single layer of columnar epithelium, others with several layers of flattened epithelium.

"Section of vermiform appendix shows small round-cell infiltration of all coats; its mucous membrane fairly well preserved. The most marked change is the extreme hypertrophy of muscular and serous coats.

"Diagnosis: Chronic interstitial salpingitis; tubal abortion; multilocular glandular cystoma of ovary, which has originated from a separated portion of right ovary or from a third ovary; chronic interstitial appendicitis."

CASE III.—Mrs. H., æt. 31; married. First menstruation at 12 years of age; regular; no pains. Two miscarriages. One child; instrumental delivery. Has some leucorrhea. Her general health is fair.

She entered the German Hospital on January 4, 1899. She was then flowing at her regular time; nothing abnormal was noticed with the flow. She had been taken sick about two weeks before with pain in the right side of her abdomen, and fever; her case was diagnosed as appendicitis, and she came to the hospital to have the operation for appendicitis performed. Temperature 101°, pulse 112.

Patient complains about pain in the right inguinal region. She presented the following status: Abdomen flat. Three fingers' breadth above the pubis a resistance is palpated, reaching somewhat higher up on the right side; it feels hard, appears to be immovable; pressure is painful. Perineum is lacerated; uterus small; fundus pushed to the left side, apparently not enlarged. Left appendages cannot be clearly outlined. Right appendages are taken up by a round thickening which is identical with the one felt on the outside, reaching down into the Douglas, where fluctuation apparently is perceptible. Diagnosis uncertain; to clear up the case, on Janu-

ary 9 chloroform is given. The mass is mapped out more clearly; aspiration through the vagina is negative. Diagnosis: cystic ovary; extrauterine pregnancy was also taken into consideration.

January 14, operation. Ether; incision in median line. It is found that the uterus is pushed toward the left and forward, and turned on its longitudinal axis; it runs nearly sagittally in its transverse diameter. On the right side of uterus, reaching from the pubis half-way to the umbilicus and a little over the median line, a round, bluish tumor is visible, over which the broad ligament is stretched. The tube is hard, thickened, and running in its entire length over the tumor, disappearing into it at the abdominal end. There are a few adhesions with the intestines; the appendix vermiformis with its lower end is adherent to the tumor. It is found that the tumor adheres to the broad ligament, pelvic wall, and uterus. The adhesions are separated, under the control of the eye, with fingers and scissors. During the process of enucleation the tumor ruptures in several places and coagulated, dark blood escapes. When freed everywhere but from the ligament and uterus, clamps are applied, one on the ligamentum infundibulo-pelvicum, another on the uterus, then the tumor is cut away. The tube stump is excised from the uterus, a few arteries are caught with artery forceps and tied with catgut, and the clamps are released. A few mattress stitches are put over the broad ligament, starting from the uterus. The inspection of the left side shows that the tube and ovary are buried down in adhesions. The ovary appears normal; the tube at its abdominal end is closed; it is enlarged in the shape of a retort—sactosalpinx serosa. Tube and ovary are closely adherent. The ovary, at the end where the tube is adherent, is the seat of a corpus luteum. Tube and ovary are freed from adhesions, and an incision is made in the abdominal end of the tube. The lumen of the tube is thus exposed and the thickened, fimbriated end is excised; the corpus luteum is also cut off the ovary. With running stitch the wound in the ovary is closed; another running stitch brings the mucous membrane of the tube into apposition with its serous coating. In the pelvis a troublesome bleeding occurs in the depth of the Douglas pouch. A cloth wrung out in hot water is put in tightly, but thermocautery has to be applied to stop this bleeding. Then the abdomen is closed in tiers.

Recovery was uninterrupted; patient left the hospital on February 4.

"The specimen consists of right adnexa, including an ovarian cyst with a blood clot. Fallopian tube is 11 centimetres long; its uterine third is not patulous, but its outer two-thirds gradually dilates until at its abdominal end its diameter is 4 centimetres. This abdominal end shows thickened fimbriæ and is firmly attached to, and opens into, an ovarian cyst. This cyst is irregular in shape and measures 10 by 9 by 8 centimetres in diameter. It presents one large cavity, with a second smaller one opening into the first. Its external surface is ragged from numerous adhesions, and its internal surface rough with adherent blood clots. Attached to this internal surface anteriorly is a firm blood clot 5 by 4 by 3 centimetres in diameter.

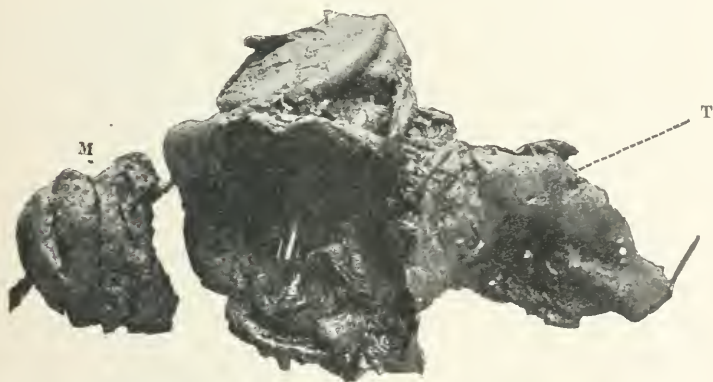


FIG. 4.—Case III. Pregnancy in tubo-ovarian cyst. M, mole: T, tube.

"No ovary or remains of one to be seen. Mesosalpinx thickened and opaque.

"*Microscopical Examination.*—Section of the Fallopian tube near the point where this opens into the ovarian cyst shows its muscular coat much hypertrophied, but no proliferation of its mucous membrane, its epithelium being well preserved. Its lumen is nearly closed.

"Section of wall of ovarian cyst shows chiefly fibrous connective tissue with gland acini, some of these being lined with a single layer of columnar epithelium, others being more or less filled with flat epithelial cells but no papillæ.

"Section of the organized blood clot attached to the internal surface of the ovarian cyst shows newly-formed connective

tissue scattered throughout the blood clot; decidual cells irregularly distributed; and groups of chorionic villi, often necrotic in the centre, and covered with one or more layers of epithelium.

“Diagnosis: Chronic interstitial salpingitis; multilocular glandular cystoma of right ovary; tubo-ovarian abortion.”

Remarks.—The three cases present a few features worthy of remark. In not one of these cases did the women experience any sign or symptom of being pregnant. Menstruation had been regular; in two instances the first seizure of pain occurred two weeks after the last menstruation, in one instance at the time of the expected flow. In the third case menstruation took place again at the regular time without any peculiarity; in Case 2 a slight show of blood was observed days after the first attack of pain; and in Case 1 an irregular metrorrhagia was started at the time of the expected menses; in this latter case clotted blood was also passed. It may, therefore, be surmised that the ovum of the ectopic gestation was not detached from the ovary at the last menstruation before the attack of pains, but at some previous menstruation.

This opinion finds confirmation in the condition of the corpus luteum. A fresh corpus luteum was found during operation only in one case, where the (regular) menstruation was just over when the abdomen was opened.

All patients had rise of temperature when admitted to the hospital.

Case 2 presented some decidedly extraordinary points. During and right after the operation I was fully convinced that the tumor which I had removed was an ovarian cystoma. My opinion was somewhat shaken when, on studying the literature, I found cases reported where extravasated blood had become organized, and where this organized blood clot could be peeled off like a tumor. I was furthermore dubious because the ovary had been removed *in toto* and the tumor walls had been so very friable. But very numerous and most careful microscopical examinations by Dr. Nelson have established the fact beyond any doubt that the mass removed is a true ovarian cystoma. Whether there was a communication between this cyst and the tube before ectopic pregnancy occurred, or how the extravasation of blood occurred into the cyst, I am unable to explain, since the very great friability of the tumor caused its removal piecemeal.

In the third case reported, there cannot be any doubt that

this is a case of ectopic pregnancy in a tubo-ovarian cyst. The tumor was removed *in toto*; only the utmost outer end of the tube was patulous and attached directly in this ovarian cyst; that it is an ovarian cyst is demonstrated by microscopical examinations.

From the pathologist's point of view the following features appear interesting as characteristic of tubal pregnancy: Hypertrophy of muscular coat outside of placental site present in two of these cases. Thinning of muscular coat at placental site present in two cases. Follicular change, polypoid proliferation of mucous membrane of tube outside of placental site, present in one case here, or mucous membrane may remain unchanged outside of placenta. Irregular arrangement of decidual cells; necrotic change of chorionic villi in the centre and heaping up of epithelial cells on the borders; also giant cells on these.

1018 SUTTER STREET.

OVARIAN CYSTOMA COMPLICATING PREGNANCY.

BY

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New York.

MRS. — came to me on the 22d of last July to engage me for her approaching labor.

History.—Age 22. Married one and a half years. Pregnant for the first time. Menstruation began at 15; has always been large in amount and attended by severe dysmenorrhea. Her last menstruation stopped December 12, 1898. When 17 years of age, suddenly, without known cause, an attack of severe pain in the lower portion of the abdomen began that lasted about six weeks. She was obliged to be in bed ten days of this time, and her menstruation appeared twice, more profusely and more painful. After that attack she suffered more or less severely from pain in the left iliac region until she became pregnant.

Last March she consulted a physician at her home in the West as to the advisability of her going to Porto Rico to join her husband, who was stationed there with the United States cavalry. The physician examined her and said it was a normal pregnancy, and saw no reason why the trip should not be

made. The anxiety of her mother, however, prompted her to consult another physician, who thought that she must be further advanced in pregnancy than was supposed and advised against her leaving home. His advice was not followed, and she went to Porto Rico and remained there until the 1st of July. Her health remained good, with the exception of slight digestive disturbances that appeared near the end of her stay.

Examination.—General appearance good. Heart and lungs normal. Abdomen was symmetrically enlarged by a tumor that corresponded in size and shape to a full-term pregnant uterus. Fetal heart was heard high up near the median line. The fetal head was felt in the upper part of the tumor upon the right side. Fetal movements were strong. Pelvic measurements were normal. The vaginal examination revealed a very soft cervix with patulous external os situated high up and behind the symphysis. None of the fetal parts were felt from below.

A tumor of regular and smooth outline, that appeared to be of solid consistence, was felt behind the cervix. It almost completely filled the pelvic inlet.

A consultation with Dr. Jarman the next day confirmed the diagnosis of a probable fibromyoma impacted behind a pregnant uterus. But, in order to determine more completely the nature and relations of the tumor, another examination under chloroform was made the following day. It was then found that the tumor was probably a very tense cyst, although per rectum it still felt rather hard. Our efforts to push it up and out of the pelvis were futile.

We decided to make an exploratory vaginal section first, and, if necessary, to immediately complete the operation by the abdominal route. Preparations for both operations were completed, and two days later (July 26) an incision was made in the posterior vaginal wall just behind the cervix and two fingers inserted. The tumor was then found to be cystic and apparently not adherent to surrounding structures. It was then opened upon the fingers as a guide, and about two quarts of clear, straw-colored fluid came away. It also turned out to be unilocular, as the sac completely collapsed. The cyst wall with gentle traction came down through the vaginal opening, but, on account of the advanced stage of the pregnancy, it could not be drawn down far enough to tie off completely without pulling down more than seemed desirable. A small part of the cyst wall was therefore left and gauze packed lightly through the vaginal opening.

The patient did well after the operation, but, in spite of large doses of morphine, uterine contractions began on the third day and slowly and irregularly increased in severity until the fourth day. The cervix dilated very slowly, and on the morning of the fifth day was only about half-completed. The patient at this time began to be exhausted and the pulse increased a little in frequency. The dilatation was therefore completed manually under chloroform, and a small premature child was delivered alive by the breech. Both legs were extended to the head, and in getting down one foot the left thigh was broken at the junction of the middle and upper thirds. The patient suffered from considerable shock for a few hours after the operation, but she reacted well and made an uninterrupted recovery.

The pelvic organs involuted very well, and at the end of a month the following conditions were found: Pelvic floor strong. A small cicatrix in the posterior vaginal wall at the site of the incision was present. Cervix was bilaterally lacerated, and the mucosa was the seat of considerable catarrh. The uterus was in a normal position, of nearly normal size, fairly movable and not tender. Nothing could be felt upon the right side; but upon the left, the ovary, slightly enlarged, tender and prolapsed, could be distinctly made out. Above it some irregular thickening could be detected. The old pain in the left iliac region returned mildly about this time. Local treatment was begun, and October 10 the thickening together with the tenderness and pain had markedly decreased. The patient went then to her home, to return to New York in about three months.

Child.—The child was thought to be, when born, in about the thirty-third week of intrauterine life. One week after birth it weighed three and one-quarter pounds and measured seventeen inches in length. The lanugo had begun to disappear. The hair of the head was fairly abundant, and the nails presented a normal appearance, although they had not quite reached the ends of the fingers. There was a fair amount of subcutaneous fat.

An incubator, made of a pasteboard box and kept, by means of hot-water bags, at a fairly uniform temperature, was improvised, in which the child was kept for nearly a month. Its nourishment during the first three weeks was from the Walker-Gordon laboratory. After that cow's milk modified at home was used. Many changes in the percentages were made, for, although it did not lose in weight, no real gain began for a

month. At the end of nine weeks it weighed four pounds and ten ounces.

The fracture of the thigh, although a cause of much anxiety, united quickly, and when last seen no deformity or shortening appeared, and even the callus had almost disappeared. The treatment consisted in splinting with triangular pasteboard boxes, with the thigh flexed upon the abdomen and the leg upon the thigh. Frequent change of dressings and light massage to the seat of the fracture were kept up for two weeks. Traction with the legs at right angles to the body was applied for three days in order to anticipate any possible shortening.

The Tumor.—The character of the fluid, the position of the tumor, and the fact of its being unilocular would suggest its origin to have been from the right parovarium, but the wall was too thick and a separate peritoneal covering could not be detected. There were three small and rather flat papillomata upon its inner surface, but no others were seen or felt in the pelvis during the operation.

Microscopically the wall of the sac showed small and collapsed openings that were taken to be old atrophied loculi. Sections of the warts showed a preponderance of connective tissue over the epithelial elements, and the term papillary fibromata, used by Kelly, might be appropriately applied to them. The tumor, then, from the examination would appear to be a papillary cyst-adenoma of the right ovary, one-third of which are found at operation to be unilocular.

The history and outcome of the case up to the present time present, I think, some points worthy of consideration.

1. It is perhaps unnecessary to call attention to the dangerous possibilities of neglecting to examine every pregnant woman before labor.

2. Difficulties in the diagnosis of pelvic diseases are especially frequent during pregnancy. All of the parts are so altered by the attending congestion that the consistence, especially of tumors, may be easily misjudged, and the differentiation between the tumor and the uterus may be difficult, or even the presence of the tumor may be hard to appreciate. The nature and relations of the tumor in this case were harder to determine than perhaps the writer's description of the case would imply.

3. Both the advantages and the limitations of the vaginal route for access to pelvic lesions appear to be demonstrated in this case.

It was possible by this route, at an undesirable time for surgical procedures, to remove a serious obstruction to labor without endangering the patient's life. A complete surgical result, however, was not obtained, although it possibly might have been.

A previous knowledge of the presence of papillomata might determine some operators to go in by the abdomen. The most recent pathological studies teach us that many papillomata do not spread, that they are not malignant in the sense that carcinoma is, and that they do not become carcinomatous. The results of the histological examination of the papillomata in this particular case would seem to assure a favorable prognosis.

THE OBSTETRICAL AND GYNECOLOGICAL TREASURES OF
THE ARMY MEDICAL MUSEUM.¹

BY

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THE government of the United States has established in this city, at great expense, the magnificent library of the Surgeon-General's office, which is unsurpassed as a reference library by any similar institution in the world. Along with this great and useful establishment is the Army Medical Museum, containing thousands of pathological specimens illustrative of the many phases of disease, and open to inspection to all who may be pursuing investigations in pathological and anatomical matters. While the library is all that can be asked of it, much remains to be done to make the museum what it should be—*i. e.*, a *reference* museum. It is true there are specimens illustrating every disease to which flesh is heir, but many phases of many diseases are still unrepresented in this magnificent collection. Enough, however, is on hand to supply material for the earnest student of disease, and it is the object of this address to call the attention of the profession in a general way to the advisability of more frequently resorting to this storehouse of pathology, and in a special way ask obstetricians and gynecologists to consider the advantages to be derived

¹ The address of the President, delivered before the Washington Obstetrical and Gynecological Society, October 6, 1899.

from frequent visits to the museum when they are preparing papers to be read before societies or for publication in medical journals, emphasizing the fact that what may be said of the richness of the museum in obstetrical and gynecological specimens will apply with equal force to other branches of medical and surgical pathology.

Reference is frequently made in the discussions before the great medical and surgical societies of Europe, especially in England, to specimens in the museums attached to the leading hospitals, illustrating subjects under consideration, which demonstrates that the profession abroad is alive to the value of pathological specimens and that the specimens are so placed and classified as to be readily available to those who desire to use them. Yet how seldom is reference made to the material to be found in this museum! This should not be the case. Valuable specimens are presented to our medical societies and are then relegated to the darkness of private collections, or packed away in hospital closets or medical colleges where they are never seen except when a jar is needed for fresh specimens, and then they are found to be spoiled and useless, and are dumped out to make room for others which are to go the same way. This does not seem to me to be right. Instead of looking upon these specimens as so much "embalmed beef," they should be regarded as treasures of great value, to be revered as sacred; because many have been secured at the cost of many a promise to those who have consented to subject the bodies of their loved ones to autopsical examination, and besides they are parts of human beings and should be ever regarded as worthy of the same consideration as is bestowed upon that portion of mortality which is interred in the grave.

Never in the history of medicine have so much time and labor been devoted to the determination of the causes of disease as now. The purpose of wringing from disease the secrets which will enable us to thwart the attacks on human life and health was never before pursued with so much assiduity. This we must do in self-defence. The "public" demands that we shall find the causes of disease and apply or suggest the remedy. The government, while not so liberal in appropriations for the museum as it should be, has made it possible for a great deal to be done by establishing this Army Museum and fitting it up in a manner that will make it useful to those who would investigate, or have investigated, matters of vital interest to pathologists; and it is reasonable to suppose that, if the

medical profession manifests that interest in the work which it should exhibit, more will be done to make this great institution commensurate with our national importance and with the demands which advancing medical science may make upon it.

The classification of the specimens in the museum discloses the fact that a great deal of useful material is to be found pertaining to obstetrical and gynecological matters, and the investigator will be amply repaid by an examination of the several sections devoted to these branches. Through the courtesy of Dr. Daniel S. Lamb I am enabled to refer to some of these collections and will now invite your attention thereto.

In addition to the specimens of deformed pelves, there are some 25 models showing deformities of the female pelvis. The normal contents of the pelvis are also depicted. These are invaluable for purposes of teaching. Specimens illustrating fetal development in the human being and the lower animals are quite numerous. There are about 50 embryos and fetuses from the lower animals, and 100 human specimens at ages varying from about one month to term, some with uterus and placenta, some twins; also, twin and triplet placentas.

Models showing various physiological and developmental features are quite numerous. The following are worthy of mention: 1 showing ovary and Graafian vesicle; 23 showing development of the chicken; 8 showing development of the human embryo during first month; 8 showing developmental conditions during third week; series showing development of human embryo up to two months; series of 20 showing development of mammalian embryo; series of 6 showing development of uterus to term; series of 14 showing development of human brain; series of 22 showing development of human heart; series of 9 showing development of human eye; series of 10 showing development of human genitalia. Also a large number of serial sections of embryos and photographs of the same, showing relative and consecutive parts.

There are between 150 and 200 specimens of malformations, single and double, human and comparative, all the more common and many rare forms.

Many of these specimens and models are, of course, of more use to the teacher or student of physiology; but in medical matters it is impossible sometimes to say where one branch leaves off and another begins, so intimate are the relations between them.

Of pathological conditions of the uterus, including puerperal

cases, there are many specimens. Among the puerperal are 2 of uterus containing a child, 9 uteri after parturition, 3 ruptured uteri, 1 showing subinvolution, 2 cases of Cesarean section, 1 from a case of puerperal pyemia.

Of the specimens of diseased uteri there are 2 of sarcoma. One of these is the specimen I had the honor to present before the Medical Society some years ago, which was obtained from a child under 4 years of age, and is the first case recorded of sarcoma of the uterus occurring before puberty. The relative infrequency of sarcoma to carcinoma is emphasized in the fact that while only 2 specimens of the former are found, 10 or more of the latter may be seen. Of fibroids there are 40 specimens illustrative of the many forms and locations of these tumors. I would call attention to the sparsity of small tumors. Why this should be I cannot understand, as the study of the etiology of this form of tumor would, it seems to me, be greatly facilitated by having a large number of very small tumors for reference instead of so many large ones. The former would, of course, show the starting point—tissue—of the growth, while the latter only demonstrate the dangers which attend the development of fibroids and the skill of the surgeon who removes them, but furnish very little information which may be available for the formulation of treatment looking to the prevention or arrest of the growths. Eight specimens of polypi might properly be added to the last-named form of growths. Displacements, injuries, abscess, atrophy, hypertrophy of the cervix, etc., are among the other interesting objects.

Diseases of the ovary furnish many specimens. I may mention 5 of cancer, 2 of sarcoma, 25 cysts, 9 dermoid tumors, 2 fibroids, adenoma, calcareous changes, hemorrhage, rupture of Graafian follicle, and other interesting conditions which lack of time will not permit me to name.

Interesting exhibits of tubal disease may be cited. Tuberculosis (3 specimens), cysts, tubo-ovarian abscess (12 specimens), broad-ligament cysts and tumors, pelvic cellulitis, and many other affections met with by gynecologists, are open for inspection and study.

Affections of the external genitalia and the vagina are amply illustrated. Among these may be mentioned syphilis, tuberculosis, tumors, hypertrophies, fibromata, adenomata, myxomata, papillomata, cysts, ulcerations, etc.

I would invite serious consideration of the diseases of the

mammary glands as they are illustrated by the specimens. Merely mentioning 2 cases of hypertrophy occurring in girls and others in adults (among the latter being specimens weighing $11\frac{1}{2}$ and $33\frac{1}{2}$ pounds), I will call attention to the 50 or more of cancer, 10 of fibroma, and 2 of adenoma. The large number, comparatively, of the last two varieties gives a ray of hope in cases of tumor of the breast. While the surgical dictum is to remove all growths of the mammary glands and make the diagnosis afterward, the fact remains that we are too prone to give an unfavorable prognosis in all cases of tumor affecting these organs. The trend of surgical thought of late has been to regard a great many mammary growths as benign which a few years ago would have been named malignant in the absence of microscopical examination. While the correctness of the surgical rule to remove all growths in this region must meet with cordial support, the peace and happiness of many a home will be preserved when we shall be able to so formulate diagnostic signs as to enable us to give a favorable prognosis to dispel the gloom incident to the discovery of a tumor in the breast of some dear one in a family.

Having called attention to the large number of classified specimens—more than a thousand—and to the facility with which they may be examined, I may now add a few words concerning the obligations of the medical profession generally, and of the local profession especially, to make this collection still more useful.

Outside of the large cities the facilities for the preservation and exhibition of pathological specimens are very meagre, in fact are practically worthless. Therefore, if physicians who have valuable specimens would send them to the Army Museum they would greatly add to the value of the collection and thus ultimately make a *reference* museum of this institution, as has been already mentioned. The local profession has contributed greatly to the collection already available, but may do much more. The interesting specimens presented before our own Society constitute no mean number, and, if they alone were deposited in the Army Museum, would considerably augment that portion of the material which is particularly interesting to us as members of a “specialist” society. A spirit of emulation might then arise in other societies, and the benefit which would result cannot be estimated. The facility with which the local profession has access to this collection should be a further incentive to make it still more interesting and use-

ful to others. As the collection increases in number and variety of specimens, its benefits to our local physicians will be naturally greater than to those living at a distance. The appreciation of this institution by the medical profession will justify Congress in making larger appropriations whereby increased accommodations for laboratory work may be secured, and there is no reason why the very best scientific work in the way of pathological investigations should not be fostered by the aid of the government. Splendid work has already been done by the Department of Agriculture in ascertaining the cause and prevention of diseases among cattle; and if similar vigorous efforts are made by the government to learn the causes of diseases among the people, may we not look for grand results in the future? It may be that this matter could be more advantageously carried out by a department of public health, but the situation has not yet been sufficiently worked up to convince the "powers that be" of the necessity for such a department. If the medical profession will do its duty and rally around this *nucleus*, the Army Medical Museum, the time will speedily come when it will outgrow its present limits and blossom forth into a full-fledged institution of such usefulness as will compel the establishment of a branch of the government service devoted to the investigation of the causes of diseases and the means for their prevention. Much is being done by the Marine Hospital Service to prevent the spread of epidemic diseases, and if a department shall be established to consider the health of the people, it is not unreasonable to suppose that the determination of the etiology and pathology of diseases would be more satisfactorily attained by the consolidation of all these branches under one management. The Army Medical Museum has the pathological material on hand to provide for the needs of a new department in that direction. Surely the obstetrical and gynecological sections are replete with valuable specimens. A move in this direction would be of infinite value in preserving the health of our people. No nobler theme can engage the attention of a government than that which pertains to the health and prolongation of happy life among the people. Our government will not be backward in this matter if the medical profession manifests proper interest in pushing on its share in the work.

Having invited attention to the valuable and interesting obstetrical and gynecological material in the Army Medical Museum and to our duty to add to it in every way we can, I will make a single suggestion and close this address.

When a specimen is presented before this Society, let it be accompanied by a short *written* history of the salient points in the case, together with such results of microscopical and chemical examinations as may have been made. The value of the specimen is thus greatly enhanced, and if it should be contributed to the Army Museum, further investigation would be greatly facilitated thereby and the labor incident thereto reduced to a minimum.

1133 TWELFTH STREET, N. W.

CORRESPONDENCE.

THE PREMONITORY SYMPTOMS OF APPENDICITIS.

HOW SHALL WE ACT WHEN WE RECOGNIZE THEM?

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR.—As progress should be our aim, I believe that there is one moot question in abdominal surgery that requires careful consideration.

Owing to the advance that has been made, our knowledge of intra-abdominal diseases has reached such a stage that the last word has been said in connection with many of them. By a careful analysis of symptoms we are now able to detect an unruptured ectopic gestation, to operate, and to save the life of the patient; by a careful analysis of symptoms we are able to recognize the presence of gall stones and to distinguish between obstruction of the cystic and common ducts; by a careful analysis of symptoms we are able to unravel the mystery that formerly surrounded the early stages of Fallopiian-tube disease. And now it is high time that our attention should be turned to the premonitory symptoms of appendicitis. That there is a premonitory stage in a certain number of cases cannot be denied.

In the past we have been satisfied to diagnose the acute disease after its sudden onset. Our attention has, therefore, been diverted from what has gone before. Now, at the close of this century, there is scarcely a medical man who is not able to diagnose with ease a case of appendicitis. Of late I have been endeavoring to obtain the history of little ailments that might have guided me to foretell the probability of an acute

attack. In some of these patients a definite feeling of discomfort has been noticed in the right iliac region. The patients have paid but little attention to it, or, if they have consulted a physician, the physician has paid but little attention to it. When carefully examined in the recumbent posture the appendix may be occasionally palpated, and on palpation it will be found to roll like a tender cord under the fingers of the left hand. The tenderness is to be made out in this way, and it is very definite. When the temperature has been ascertained it will be found slightly elevated. These symptoms, I think, are sufficient to point to an inflammatory condition of the vermiform appendix.

We now have, therefore, a patient who is in as much danger as if suffering from an unruptured ectopic gestation. In the one case, that of ectopic gestation, we now advise immediate operation. The profession has not as yet stated what we should do in the other case. Should we stand by and wait for the onset of the attack (that may be a fatal attack), or should we anticipate the attack and prevent it by the removal of the appendix?

It is needless to state that the appendix cannot be palpated in all cases. When situated beneath the liver or in the depths of the pelvis, or curled downward and backward and folded against the outer wall of the meso-colon, it is impossible to feel it. But even in these situations a tenderness may be made out, if the organ is inflamed, by a careful examination. When the profession has become thoroughly informed as to the premonitory signs of appendicitis, the public must needs follow suit, and then a man or a woman will understand that there is a meaning in a soreness in the right side of the abdomen, as well as there is a meaning in the soreness of a throat.

We are all well aware that interval operations are practically free from danger in skilled hands. I have never yet lost a patient from an interval operation for the removal of the appendix. When the fulmination comes and the discharge of a septic product has taken place into the peritoneal cavity, surgical treatment is unfortunately oftentimes of no avail. The premonitory symptoms have not been read aright. The patient has not understood their meaning, and he is suddenly awakened to the fact that there is something very wrong by the severe symptoms that now set in. Even after this period has been reached a physician is frequently not called for another twenty-four hours, and then the golden opportunity has

been lost. If taught to anticipate the possibility of a sudden outbreak by a careful consideration of the premonitory signs by both physician and patient, the patients are prepared to act promptly when the real attack is ushered in. In this way it seems to me that many a life may be saved that is otherwise sacrificed.

We all know that unless these cases are operated on within from twenty-four to thirty-six hours after the septic material has been poured into the peritoneal cavity, we are not likely to gain anything by surgical measures until a later period has been reached. When operated upon quite early, convalescence is, in many cases, not as uneventful as we could wish. I have seen a patient suffer from septic pneumonia when operation was performed as early as seventeen hours after the first onset of pain.

I do not wish to be understood as advocating the removal of the appendix as a prophylactic measure, but as discussing the advisability of removing a slightly inflamed appendix to protect the patient from what may be a more virulent, and perhaps a fatal, attack of appendicitis. It has been said that after the second attack of appendicitis the appendix should be removed. I cannot understand why we should wait for the second attack. My own belief is that after a first attack of appendicitis the appendix should be removed, and I am beginning to believe that, given the symptoms of an inflamed appendix previous to the onset of acute symptoms, the patient is safer after the appendix has been removed than he is after any other form of treatment.

I frequently find fecal concretions in the appendix when operating for first attacks. These concretions no doubt work their way a little further into the appendix, produce a tension of its walls, and give rise to pain; they then may slip back again and the pain ceases. I believe that these fecal concretions give rise to certain symptoms, just as a gall stone passing down one of the ducts will give rise to symptoms. But these symptoms, up to the present time, have scarcely been recognized. We might as well attempt to treat a case of unruptured ectopic gestation on conservative lines as to attempt to treat an appendix with a fecal concretion on conservative lines. No one would think of treating the former condition in any such way.

Many of us, I am afraid, have not yet cast aside the traditions of the past, and therefore are apt to treat the latter

condition according to old methods. It is not only the sudden damage we have to deal with, but the insidious burrowing, ulcerative and suppurative changes that may be going on inside of the abdomen during the so-called premonitory stage of the disease.

A great deal of advanced suppurative disease may be found inside of the abdomen of a patient who has been able to do his or her daily work. I have seen a woman walk about the wards of a hospital with her abdomen full of blood from a ruptured ectopic gestation. I have seen a man walk to the operating table with his abdomen full of pus. When we know that so much that is serious may be hidden from our gaze, we must look about us and endeavor to make a more careful analysis of the symptoms presented by our patients. A pain in the abdomen must not any longer be looked upon as a trifling "belly-ache," but must rather be regarded as an indicator of the existence of a dangerous condition within.

The whole question, therefore, can be summed up as follows: First, are there definite premonitory signs that presage an attack of appendicitis? Secondly, if these signs exist, what are they? Thirdly, when these definite signs are found, what should be done?

Yours very truly,

JAMES F. W. ROSS.

481 SHERBOURNE STREET, TORONTO, CAN.,

November 15, 1899.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, October 19, 1899.

R. C. NORRIS, M.D., *in the Chair.*

DR. E. P. DAVIS read a paper entitled

THE FREQUENCY AND MORTALITY OF ABNORMAL PELVES.¹

DR. JOHN C. DA COSTA.—If I understand the paper rightly, these patients of Dr. Davis were among what are ordinarily called hospital cases, none of them in the better walks of life.

¹ See original article, p. 11.

I would like to ask his opinion as to what percentage there would be among people better nourished, those who had not been starved during childhood, as probably the majority of these cases had been. We know how starvation affects the development of the body, and I would like to have his opinion of the probability of it having affected these women's pelves.

DR. GEORGE M. BOYD.—I think Dr. Davis is to be congratulated upon so successful a report of the low mortality, and particularly that in contrast with the number of operations that were demanded in the majority of cases.

I was glad to hear him lay stress upon the fact that we cannot consider alone the measurements of the pelvis in conducting our labor cases, but must make, at all events, the first stage of labor the test in many cases. This being the case, it seems to me the wisdom of inducing labor, in many cases, must be questionable. Can we, a month before term, determine positively whether it is wise to induce labor or not? So much depends upon the size of the presenting part and the size of the deformity. Although the pelvis may be considerably deformed, the passenger may be equal to the deformity. I remember hearing read before this Section a paper by Dr. Reynolds, of Boston, entitled "The Cesarean Section *vs.* Fetal Mortality." The question of the frequency of pelvic deformity is discussed there. In the discussion Dr. Duer stated that in his work, a private obstetric experience, he seldom met with pelvic deformity, and that obstructive labor was quite rare. This is not the experience of those who follow hospital work and the work among the poorer classes, the cases coming to us in bad condition. We find that our mortality is higher, and I quite agree with Dr. Davis that in my own work, in the medico-chirurgical maternity particularly, we find just as frequently pelvic deformity.

DR. R. C. NORRIS.—The subject is of great practical importance as well as of scientific interest, and, having charge of a lying-in institution such as the Preston Retreat, I always feel it my duty to take part in the discussion of these subjects. My experience in that institution with pelvic deformities has been worth noting. Dr. Davis' patients were only measured externally, except when these measurements or the patient's history indicated deformity, when they were examined internally as well. That is the plan I follow, and for practical purposes it is sufficient. An internal examination of all cases, however, is necessary for statistics of real value.

In Dr. Williams' report at the Johns Hopkins every case was examined internally and externally; and while commendable from the standpoint of accurate statistics, I have felt, even in hospital work, that, from the standpoint of practical obstetrics, the *routine* internal examination is unnecessary and may be dangerous, since the patient is exposed to the risk of infection. It is, however, a very valuable and necessary attention, if we wish to make complete records for their scientific interest alone.

My work in pelvimetry at the Preston Retreat has been along the lines indicated by Dr. Davis. I have records of the external measurements of every case entered in the institution since I have been in charge. The number has been in the neighborhood of 1,400 cases, and the percentage of pelvic deformity shown by external measurements alone would agree with Dr. Davis' work. I cannot give the actual percentage, because I have not analyzed the records since my last report.

External measurements will not indicate the exact condition or size of the pelvis internally; therefore to estimate the capacity of a woman to bear a child, and for an accurate knowledge of the pelvic deformity, internal measurements are essential. With an external conjugate of 16 centimetres I have observed an internal conjugate practically normal, and with an external conjugate of 18 centimetres I have found a true conjugate of 8 centimetres. I have made it a rule, however, to consider an external conjugate of 18 centimetres the limit indicating the necessity for an internal examination.

The internal measurements are difficult to take. They require a trained and skilled observer and an intelligent assistant. The average practitioner will not use a Skutch or similar pelvimeter with precision. If all the cases were examined internally the results of our study of the types and variations of pelvic deformity would be more valuable from a scientific point of view. From a practical standpoint I have not felt it my duty to do so and can present no statistics. When a woman has repeatedly been delivered with no difficulty, I can see no practical benefit to her or to me from measuring her pelvis internally.

I was glad to hear Dr. Davis speak favorably of inducing labor. That, in my experience, has been the method of choice. The cases at the Preston Retreat usually come to me sufficiently early for this method of treatment to be employed. As a result of this fact, in the series of 1,400 cases, I have never found it necessary to do a Cesarean section, and only once has it been necessary to do symphyseotomy. The latter patient has subsequently been delivered twice by induced labor, and each child is living. The child born by symphyseotomy was also living. I should also say that I have never done a craniotomy in the Preston Retreat. During my vacation one summer my assistant did craniotomy on a dead child. This scarcity of major obstetric operations is in contrast with the work of other obstetricians in charge of lying-in institutions; and I could never quite understand why it should be so, unless it is due to the fact that my cases are seen early and opportunity for induced labor is offered. That factor, however, cannot be true of my service at the Philadelphia Hospital, where my patients are of the same class as those of my colleagues. Throughout eight years of my service in that institution I have never found it necessary to do a Cesarean section.

As to mortality, the freedom from grave obstetric operations in the Preston Retreat has given results in mortality and mor-

bidity that I cannot hope to improve by major obstetric operations. There have been no septic deaths at all. I have had two patients die since I have been in charge. One had advanced Bright's disease accompanied by general anasarca, and died from uremia ten or twelve days after an induced labor. The second case, eight days after a perfectly normal delivery, suddenly sat up in bed, gave a gasp, and died with symptoms of pulmonary thrombosis. Careful autopsy by Dr. Edsall could find no cause for death. Microscopical study of the heart muscle, however, found a rare pathological condition which was of exceeding interest, and I hope to report the case in detail during the coming winter. You may ask, in the absence of these obstetrical operations, what has the infantile mortality been? Dr. Davis' results were 6 per cent. In the first 500 cases of my work at the Preston Retreat the fetal mortality was 7 per cent. I have not critically studied the statistics since the report was published, but I am certain the mortality is not greater.

When Cesarean section is indicated I would not hesitate to do it. I have had cases where I thought I might be called upon to operate. I recall one night when I was prepared for a Cesarean section, the labor being obstructed by a fibroid tumor. It was situated in the lower segment of the uterus, and, rather than rush into the operation, I waited, and was gratified to find that the fibroid was lifted out of the pelvic cavity and the child was born spontaneously. The woman's convalescence was satisfactory in every respect. There have been cases of pelvic deformity which, during the period of popularity of symphyseotomy, I thought would require that operation; but having been much impressed by the similarity of my experience and that detailed in an article on "The Symphyseotomies One Does Not Do," I allowed the patients to be in active labor, have applied the forceps in a tentative manner, have removed the forceps after some progress had been made, in order to permit moulding to proceed, and have then reapplied the forceps and have been successful in delivering the child. For other cases of this class version has been selected. I confess that wide experience and the best of obstetric judgment are necessary to choose between forceps, version, symphyseotomy, and Cesarean section. It may be that the patients at the Preston Retreat do not show the same degree of deformity as in other institutions, and that they are perhaps a better class of patients. If that be true, then they more nearly represent the conditions that prevail in private practice, and emphasize the fact that the policy of inducing labor, when cases are seen early, is the safest course for one to pursue. What we say in these discussions guides and moulds men's opinions, and I think we should bear that in mind when we report grave obstetrical operations.

Dr. Boyd has not infrequently discussed the advisability of inducing labor, and has dwelt especially upon the difficulty of accurately determining the proper time for the induction of labor. I will grant that this is a difficult problem. It requires accurate knowledge of a combination of conditions in each

individual case that cannot be reached except by the most careful study. To estimate the duration of a woman's pregnancy from the date of her last menstrual period and induce labor on that factor alone will often lead us into error. If we take the pelvic measurements alone we will often be led into error. It has been my experience that a careful calculation of the duration of pregnancy, an accurate estimation of the size of the pelvis, and careful palpation to determine the growth and development of the child and the relative size of the child's head to the pelvis, are the three factors which best determine the time for terminating pregnancy. The last two factors are the most difficult, as well as the most important, and their accuracy always depends upon individual skill and experience.

In my experience in inducing labor at the Preston Retreat and elsewhere for pelvic deformity, to my certain knowledge, I have only twice terminated pregnancy at a period too early. That is to say, in two cases the growth and development of the child had not advanced to the extent estimated. Recalling these cases, the error is explained by the rather hurried and superficial study of the cases, a carelessness resulting from my successful experience with, and great confidence in, the induction of premature labor.

DR. DAVIS (closing).—In reply to Dr. Da Costa's question as to whether starvation had not influenced the condition of the pelvis in these cases, I found no direct evidence that such was the case. In private practice I find quite as large a percentage of abnormality of the pelvis as in the cases mentioned. I do not, however, find a high degree of pelvic contraction common among private patients.

Dr. Boyd lays stress upon the difficulty of choosing the best time for the induction of labor. This we fully appreciate, but in our experience pelvimetry and palpation first, with subsequent palpation at sufficiently frequent intervals to enable one to follow the development of the child, are usually sufficient to give proper data for inducing labor. The relative stature of both parents, the menstrual history, and thorough internal palpation of the pelvis should all be taken into consideration. When we cannot bring the fetus to engage within the pelvic brim by moderate and gentle manipulation, the time has come for the induction of labor, independently of calculations based upon the menstrual history.

With regard to Dr. Norris' remarks upon the internal examination of the pelvis, in all cases in which a decided variation from the normal was observed the pelvis was measured and each lateral half examined by internal palpation. If we possessed an accurate method of examining the fetal head by internal palpation, it would be our duty to examine each case by this method. In the absence of such an accurate method, and in view of the risk of infection which each internal examination affords, pelvimetry and palpation suffice in the great majority of cases. When they throw doubt upon the ability of the child to pass through the pelvis, thorough internal examination

is necessary. The choice of operation must usually be decided by the test of labor. In a number of cases pelvimetry, external and internal, pointed to delivery by Cesarean section. At labor, however, by posture and appropriate stimulation, the head moulded and entered the pelvis, when successful delivery was completed by forceps.

These cases were primarily studied to observe the presence or absence of pelvic abnormality. Incidentally, the statistics as to the results of labor were collected. They seemed to me of interest because they in no way are selected statistics. The cases were of all sorts, in out-patient as well as hospital practice, under the care of a number of physicians, and in a considerable number of cases medical students acted as assistants under the personal supervision of instructors. At the Preston Retreat patients are necessarily selected by the restrictions for entrance. The risk of infection is reduced to a minimum, as they are attended by one physician only. Instruction to students in the wards is not permitted, and the conditions are more favorable than in private houses. It would be strange if good results were not obtained under these circumstances.

As regards the frequency of major operations in these cases, and the question as to whether induced labor should supplant major operations, each case must be judged upon its own merits. In dealing with intelligent married women, when the patient is seen in time, induced labor should be proposed when necessary, and will usually be accepted. It has been my experience, however, to have such a patient voluntarily offer to submit to any form of operation deemed necessary. Where cases come to our notice at the time of labor, if the condition of the mother is good and the child uninjured and the time for induced labor has long since passed, we must face two alternatives, the major operation or embryotomy upon the living child. I should decline the latter positively, unless the patient was so situated that my withdrawal from the case would leave her without medical attendance. Under those circumstances I should do what I could to save her life under protest against injury to her child.

I desire to call attention to the fact that the use of forceps and version is rarely appropriate in contracted pelvis. When a high degree of contraction is present, it is easy for the practitioner to take alarm and to desist from the use of forceps. Many obstetric disasters in private practice arise from a moderate degree of pelvic contraction which is not diagnosed. The patient comes into labor; no effort is made to assist in the engagement and descent of the child; the child becomes exhausted early in labor, partial engagement only being present, and a very difficult forceps delivery ends disastrously for the child and often for the mother. If these cases had been diagnosed before labor began, the induction of labor would have been indicated, and appropriate treatment in the first stage of labor might have enabled the child to reach the pelvic floor, when a forceps delivery would have been successful.

In view of the frequency of pelvic abnormality in this country, we must insist that no one should attend a pregnant woman without thoroughly examining her, when possible, before labor. Such examination should include pelvimetry, palpation, and auscultation, with internal pelvimetry and palpation of the pelvis when marked abnormality exists. The results obtained in the cases described show that when this is universally done the results of labor compare favorably with those in other departments of medicine. In obstetrics, as in other branches of medicine, thorough examination and correct diagnosis are most important.

DR. JOHN B. SHOBER exhibited a specimen of

MYOFIBROMA OF OVARY.

Macroscopy.—A rounded, oval tumor measuring $5\frac{1}{2}$ by $2\frac{1}{2}$ by $3\frac{1}{2}$ inches, springing from a portion of the ovary, the unaffected part of which remains intimately connected with the lateral surface near one end of the growth. The Fallopian tube, connected by a portion of broad ligament with the tumor, shows no abnormality.

The tumor proper is firm and heavy. It has a smooth surface. The capsule, which resembles peritoneum, is too adherent to be stripped off.

Section shows wavy bands of fibrous tissue. In the interior a few small and rather ill-defined cysts are present. Their contents have apparently been clear fluids. No large blood vessels are apparent.

Microscopy.—The tissue consists of many bands of fibrous tissue containing a moderate number of nuclei. The nuclei are elongate and narrow, and are not present in uniform numbers throughout the section. In places the tissue consists largely of long, parallel fibres with but few nuclei, while other portions of the section show a considerable number of narrow, rod-like nuclei in elongate cells. No infiltrations of inflammatory nature are observed. The tissue is free from vessels, except those of very moderate size.

The cysts were not studied microscopically, but are believed to be cysts by softening, a result of the imperfect blood supply.

Pathologic Diagnosis.—Myofibroma of the ovary.

DR. R. C. NORRIS exhibited specimens of

OVARIAN AND FIBROID TUMORS AND EXTRAUTERINE PREGNANCIES.

There are here specimens of three interesting cases of ovarian tumors, the histories and hospital records of which briefly I will read.

SPECIMEN No. 1. *Multilocular, Intraligamentous Ovarian Cystoma.*—Mrs. S., age 23; menses at 14, always irregular and painful. At the age of 16 the flow continued throughout two years. Since her marriage, two years ago, the menstrual flow has been regular, very free and painful.

She has constant pain in the right side over the right ovary and the appendix. Urination is painful and the bowels are very constipated.

Examination.—A fluctuating tumor rises out of the pelvis on the right side, reaching to the level of the umbilicus. The uterus is enlarged and pushed obliquely to the left and is adherent to the tumor. The tube and ovary on the left side are firmly adherent and slightly enlarged. There is a profuse vaginal discharge.

Operation.—After separating omental adhesions a thin-walled, multilocular cyst occupied the pelvis and the right iliac region. The thickened and enlarged Fallopian tube traversed the upper surface of the tumor, indicating an intraligamentary growth of the tumor. Six quarts of bloody fluid were aspirated from three loculi of the tumor. After freeing dense adhesions of the sac to bowel, bladder, omentum, and parietal peritoneum, the ovarian artery was ligated at the pelvic wall and a ligature was placed at the cornu of the uterus. The anterior face of the broad ligament was then incised, the line of cleavage between the sac and the broad ligament was found, and the tumor was enucleated from its situation between the layers of the broad ligament. There was no pedicle.

The left tube and ovary were densely adherent, and so destroyed by inflammatory changes that they could not be saved by conservative resection. That fact and the very large size of the nulliparous uterus, with the history of profuse bleeding and discharge, determined the advisability of hysterectomy, which operation was performed, the uterus being amputated at the level of the internal os. The appendix vermiformis, thickened, occluded, and firmly adherent to the sac of the tumor, was also removed.

You will observe that the uterus is a large uterus for a nulliparous woman. You can see the threads and bands of adhesions, which almost wholly cover the peritoneal coat of the womb. These denuded areas of the uterus and pelvic peritoneum, together with the size of the uterus, presented a surgical necessity for hysterectomy. The patient now is ten days convalescent, and recovery is assured. It was a difficult operation, the adhesions were widespread, and Dr. Slocum, who was present, will remember the difficult character of the work.

SPECIMEN No. 2. Malignant Cystic Adenoma.—The second specimen is a large tumor removed within the last three weeks. The history is as follows: Mrs. C., age 44. Two children, the last sixteen years ago. Menses ceased about a year ago, at which time she first observed enlargement of the abdomen. The enlargement of the abdomen decreases at intervals, suggesting absorption of free fluid.

Examination.—The abdomen is symmetrically enlarged. The skin is tense and glistening. The superficial veins are very prominent. An irregular nodular mass occupies the lower segment of the abdominal cavity and reaches to the umbilicus, which is protuberant. Auscultation negative. When the

patient is in the erect posture the upper line of dulness is four fingers' breadth above the navel and the corona of resonance in the flanks disappears. The legs are edematous and pit on pressure. The intra-abdominal pressure distends and pushes outward the vaginal walls. The lacerations of childbirth are thus made very apparent at the vaginal opening. The posterior cul-de-sac is filled with a dense, nodular mass. The patient's respiration is seriously embarrassed, her pulse is quickened, and she has a typical *facies ovariana*.

Operation.—On opening the peritoneum two gallons of straw-colored fluid were evacuated, and a large ovarian tumor, free from adhesions, its pedicle springing from the right broad ligament, was brought into view. The left tube and ovary appeared normal. The tumor was a thick-walled, semi-solid cyst, presenting areas of fluctuation which on tapping gave a few ounces of bright blood. The greater portion of the tumor being solid, with areas containing a brain-like substance, it was impossible to reduce its size by tapping, and the tumor was delivered through an enlarged incision of the abdominal wall. After ligating the pedicle with catgut, the parietal and pelvic peritoneum were inspected and found to be studded with small nodules, which were thought to be sarcomatous. The intestines and mesenteric glands were not invaded by these growths. Two quarts of normal salt solution were left in the abdominal cavity. The patient's general condition had wonderfully improved the day following the operation. Her convalescence was rapid, and she is about ready to return to her home.

The size, rapid growth, and density of this tumor suggested sarcoma. The contents, you observe, in some places are brain-like. The fact that the peritoneal cavity contained a large quantity of fluid gave the impression that the growth was malignant and probably sarcomatous. Microscopic examinations by Dr. Edsall prove it to be a malignant cystic adenoma. The patient is three weeks convalescent and will soon return to her home. The subsequent history of this patient, to note recurrence, will be of interest.

SPECIMEN No. 3. Papillomatous Ovarian Tumor.—Miss B., age 48. Menses began at age of 14; were regular and free from pain; cessation of menstrual flow one year ago. Enlargement of abdomen first noticed six months ago.

Examination.—Abdomen distended by a smooth, round, fluctuating tumor reaching midway between umbilicus and ensiform. Respiration seriously embarrassed. Circumference of abdomen at the umbilicus, 85 centimetres; from symphysis pubis to umbilicus $22\frac{1}{2}$ centimetres, and to ensiform 40 centimetres. The uterus, normal in size, lies in front of the tumor. The ovaries cannot be felt.

Operation.—Two gallons of chocolate-colored fluid were removed from a monolocular, thin-walled cyst of the right ovary. The sac was loosely adherent to omentum, sigmoid, and rectum. The ovarian artery, enlarged to the size of a

lead pencil, was first ligated close to the pelvic wall; the broad ligament forming the pedicle was then included in a figure-eight ligature, and, after cutting away the tumor, the enlarged vessels of the stump were separately ligated with fine silk. Upon incising the tumor after its removal, the interior was found to contain large areas of papillomatous masses which had bled freely from contact with the end of the trocar employed to tap the tumor. The left tube and ovary were freed from adhesions, and, being normal in appearance, were not removed. Recovery was uneventful.

SPECIMEN NO. 4. *A Pelvic-Bound Fibroid firmly adherent to the Rectum.*—I wish to exhibit this specimen as bearing upon the relative technical difficulty and danger of abdominal hysterectomy for removal of a fibroid of that size and the operation by the vaginal route. The tumor was so placed in the pelvis and so densely adherent to the rectum that I am certain the operation by the vaginal route, at the hands of the most expert vaginal operator, would have run greater risk of serious injury to the bowel than by the abdominal route. This specimen, showing the area of dense adhesions to the bowel, is of no special interest except to emphasize the opinion that adhesions so widespread and so firm are more safely separated through the abdominal incision with the patient in the Trendelenburg posture.

SPECIMEN NO. 5. *Pelvic-Bound Fibroid moulded to the Shape of the Pelvic Cavity.*—The next specimen is a peculiarly shaped fibroid. There are some points in the patient's history and in the technical difficulties of the operation that are of value. Mrs. G., colored, age 35; married; never pregnant; menses had always been regular and rather scanty. During the past three years she has complained of dysuria, obstinate constipation, and constant pelvic pain. Three months ago she first noticed enlargement of the abdomen.

Examination.—A hard, nodular tumor fills the pelvis, protruding into Douglas' pouch and lateral vaginal fornices, and reaches to the navel.

Operation.—After freeing adhesions and ligating both ovarian arteries, it was impossible to dislodge the pelvic-bound position of the tumor until firm upward pressure was made by an assistant's fingers in the vagina. When this very firm pressure finally dislodged the tumor, the pressure not being well under control, a linear laceration of the wall of the rectum, two inches in length, was discovered and immediately closed. It was impossible to locate by touch the uterine arteries, which were only discovered and ligated by keeping close to the fibroid mass and cutting toward the cervix. One nodule in the region of the cervix was embedded between the folds of the left broad ligament, and had pushed the corresponding ureter and uterine artery well over to the pelvic wall. After amputating the uterus at the internal os the embedded nodule was enucleated and the artery and ureter located. I desire to emphasize the value of pressure by an

assistant, through the vagina, to dislodge a pelvic-bound tumor, while an attempt is also made to permit the entrance of atmospheric pressure alongside of and beneath the tumor by passing, at some point, the finger or blades of a forceps to the depth of the pelvis. Pressure from the vagina, however, carries with it a danger illustrated in this case. The danger of too sudden liberation of the tumor with laceration of important viscera is best prevented by instructing the assistant to be on his guard when the tumor begins to be dislodged, and not to permit too sudden release of the pelvic-bound mass. The laceration in this case was carefully stitched, drainage was not employed, and the patient's recovery was without incident.

SPECIMEN NO. 6. *Pedunculated Submucous Fibroid delivered with Obstetric Forceps.*—I have often delivered women with forceps, but this was my first experience in delivering a woman with obstetric forceps who had never been pregnant. The fibroid was found in the vagina, occupying the entire cavity of the true pelvis. The patient had had no serious trouble so far as bleeding or discharge was concerned. She knew nothing of the existence of the tumor until suddenly she was unable to pass her urine. She sent for a local physician, who for some time catheterized her at intervals. The condition getting no better, he had me see the patient with him. Upon examination I found this hard round tumor filling the vaginal canal. She was taken to the hospital and etherized. The cervix could not be reached by the finger, but the body of the normal-sized uterus could be felt through the abdomen. Sawyer's obstetric forceps was applied to the tumor the same as to a child's head, and the delivery proceeded exactly as in an obstetric case. I did a double episiotomy and thus saved the structures of the vaginal outlet from extensive laceration. A slow and deliberate delivery saved from injury the muscles of the pelvic floor. In my opinion, by the way, episiotomy can only do the former, and will not save from injury the muscles and fascia of the pelvic floor. Before the tumor was finally delivered its pedicle was located and could be felt passing into the uterus. After the pedicle was clamped and cut away, the finger passed well into the uterus found two other submucous fibroid nodules, which were enucleated. The base of the pedicle was curetted and the interior of the uterus was packed with gauze. The patient's convalescence was without incident.

SPECIMEN NO. 7. *Extrauterine Pregnancy; Rupture into the Broad Ligament.*—The patient, Mrs. K., has a characteristic history of ruptured extrauterine pregnancy. Repeated attacks of pain, accompanied by fainting, nausea, and irregular bleeding, had occurred at intervals throughout two months. The interesting character of the specimen is that the case was one of broad-ligament rupture. The formation of pseudomembrane wholly covering an inflammatory mass adherent to the posterior surface of the broad ligament will sometimes appear to be an intraligamentary situation of the mass, but

careful enucleation along lines of cleavage will dispel that notion as the tube and ovary are peeled away from the posterior surface of the ligament and the ligament is brought into the abdominal incision. In this case, however, the tube rested on top of the tumor, and this clot containing the embryo was removed from between the layers of broad ligament and could not be reached until the anterior face of the broad ligament was incised.

SPECIMEN NO. 8. *Extrauterine Pregnancy; Rupture at the Fifth Month.*—Here is also a specimen of extrauterine pregnancy, and the only fatal case in the group of specimens exhibited to-night. It is the most advanced and interesting case of extrauterine pregnancy in my experience. The history is as follows: P. H., unmarried; æt. 27; one child five years ago. Two weeks before admission had a sudden and severe pain in the abdomen, followed by a discharge of blood from the vagina. Denied the possibility of pregnancy. Menses were said to have been regular. Abdomen very tense and tender; pulse 120. A rounded, soft tumor occupied the false pelvis, having the consistence of a pregnant uterus; the cervix was soft and admitted the finger tip. While the case was being studied and an effort made to elicit a truthful history, the symptoms suddenly became more alarming. The temperature rose to 104° , the pulse remained 120. A midnight operation was performed. On opening the abdomen a thin-walled sac was found, containing a fetus six inches in length. The sac and placenta were densely adherent. The right tube was enlarged (hematosalpinx). The pregnancy had occurred in the left tube. The appendix was involved in the adhesions of the right tube and ovary and was removed. Supravaginal hysterectomy was necessary to obtain safe hemostasis. Drainage was also employed because of the evident and widespread peritonitis.

This case is of interest because of an unsuspected and overlooked extrauterine pregnancy. The girl was employed as a waitress, and had continued to work until the very day she came to the hospital. The operation had no effect upon her general condition of infection, the rapid pulse and elevated temperature were uninfluenced, and in spite of every effort she died. The case emphasizes the value of early operations in extrauterine pregnancy.

SPECIMEN NO. 9. *Carcinoma of the Uterus.*—One more specimen is a carcinomatous uterus removed from a woman 73 years of age. The patient had Bright's disease, was very anemic, and her general condition was most unfavorable for operation, but the bleeding was so profuse that death from hemorrhage was only a question of a few days. The local condition also warranted operation. I started to do a vaginal hysterectomy, but found the uterus so large that it would be necessary to morcellate the uterus, and therefore did an abdominal operation. Although this patient was operated on as soon as she came under observation, and although the local condition

warranted hysterectomy, scarcely six months have passed and the patient is practically dying from recurrence of carcinoma. This early recurrence in an apparently favorable case is only another example of the fact that operation for carcinoma of the uterus very rarely avails. I think some of the cures reported are cases which the microscope would show were not true carcinoma.

DR. DAVIS.—The first series of specimens bring up the question of the malignancy of ovarian growths. Clinically, we are accustomed to estimate the malignancy of an ovarian growth, not only from its character, but from the degree of peritoneal involvement. We do not refer to adhesions, but to alterations in the structure of the peritoneum. In the intraligamentary blood cyst a suspicion of ruptured tubal gestation of long standing must be entertained. Against this is the fact that the entire tumor seemed to have been removed with comparative ease.

In the group of fibroid cases, we recall an experience similar to that described by Dr. Norris, in which the fibroid was delivered in labor. In this case, some months after confinement, a second labor came on, in which the patient forced a fibroid tumor out of the womb and upon the pelvic floor. This was followed by severe hemorrhage, for which the nearest physician was summoned. He delivered what he supposed to be a child, and was surprised to find that a portion of the fleshy mass remained within the womb. As the patient was in shock, he summoned assistance. On seeing the case, a large fibroid tumor had been delivered, the womb had been inverted, and the fibroid was attached to the fundus by a very slender pedicle. The patient perished from hemorrhage and shock.

In the specimens shown of ectopic gestation long tolerance of a ruptured ectopic gestation is illustrated. In my own experience I recall a case in which abdominal section was performed for a pelvic tumor of uncertain origin and history. A mass of disintegrated blood was encysted in the right broad ligament and could be traced to nothing but ruptured ectopic gestation. According to the patient's history, the condition must have persisted for over a year.

DR. SHOBER.—I do not agree with Dr. Norris that operations for malignant disease of the uterus are always so hopeless as regards permanent cure. If total hysterectomy is performed while the disease is still confined to the body or cervix, before infiltration to surrounding tissues has occurred, my experience has been that these growths do not recur. Hence the importance of early diagnosis and operation in all cases where the symptoms point to possible malignant disease. In my opinion the microscope alone will determine the diagnosis. The curettings in cases where corporeal carcinoma is suspected, or the clipping from a suspected epithelioma of the cervix, should be sent to a pathologist specially trained and experienced in this line of work, and the question of operation should be determined by his report.

DR. BOYD.—The two specimens of ectopic pregnancy are interesting to me, as illustrating the frequency with which recurrence of hemorrhage may exist and not be fatal. Dr. Norris will recall the case he operated upon two or three years ago, in which the patient recovered from the primary rupture. The operation showed that there had been great hemorrhage, and Nature had attempted to shut off the coagula, and encapsulation and absorption of the clots had taken place. With operation some two months after, the patient recovered.

In two other cases, one had been diagnosticated fibroid tumor. She had had apparently repeated hemorrhage and had come to the hospital with the mass filling up the pelvis. The history, if I remember rightly, was quite clear in that case. In the second case it was not at all clear; even the symptom of pain, which has been brought very forcibly in past discussions before the Society, was absent. There seemed to be no symptoms to lead to the diagnosis of ectopic gestation. She had had elevation of temperature for months, the temperature going to normal and the patient resuming her work as stenographer and typewriter. Again there was hemorrhage and elevation of temperature with some inflammatory symptoms. Finally she submitted to operation. There was general localized peritonitis, and coagula and partly organized blood clots filling the pelvis.

I mention these two cases to emphasize more forcibly the frequency with which we have ectopic pregnancy and slight hemorrhage, and the difficulty of making clear diagnosis.

DR. NORRIS.—I have very little to add, except to emphasize that which has already been referred to—the danger of inverting the uterus when delivering through the vagina a fibroid that has a pedicle attached to the interior of the womb. In the case reported I was on the lookout for this complication, and think it wise, where such operation is in process, to make repeated abdominal examinations to note whether inversion is beginning at the fundus of the uterus. In this case, as soon as possible, a pair of curved forceps was insinuated between the capsule of the tumor and the vaginal wall, and, after extraction had progressed sufficiently to locate the pedicle, the pedicle was clamped and cut before the tumor was wholly delivered over the perineum. The clamp was not removed until further investigation showed the interior of the uterus to be occupied by two small submucous growths, which were removed by incision of their capsules and enucleation. The pedicle was carefully inspected to detect bleeding, and, there being none, it was excised and its base curetted. Danger of inversion of the uterus would be great in cases where the pedicle is short, if the delivery of the tumor were not accomplished with great care.

As to the recurrence of carcinoma after hysterectomy, my remarks probably were a little stronger than I meant them to be. I do believe that some cases that present all the microscopic and more rarely the clinical signs of malignant disease of the

cervix, if early operated upon, may live many years without recurrence. But my mind always clings to the clinical and practical side of these questions, and I regret to say my experience is that, when cases of uterine cancer come to the surgeon for operation, they are sufficiently advanced in the progress of the disease as usually not to warrant radical surgical interference. In looking over my records of one hospital service of six months I find fourteen cases of carcinoma of the cervix, and in only two was operation justifiable. The practical point is that when a patient approaches the climacteric with irregular or recurrent hemorrhage, her physician, and through him the patient herself, must be made to realize the practical importance of careful examination at the hands of a skilled specialist and of an examination made by a skilled pathologist. Only in this way can we hope to treat these cases with satisfactory results. The fact remains that the vast majority are inoperable when we see them. I, of course, believe that early hysterectomy for beginning carcinoma is a justifiable operation. It unquestionably is; but the point is, we do not see the cases early. We very often do not get an opportunity to operate when it will avail.

Stated Meeting, November 16, 1899.

GEORGE M. BOYD, M.D., *in the Chair.*

TUBULAR ADENOMA OF RECTUM.

DR. B. C. HIRST.—Three years ago I was asked to see the wife of a physician with symptoms of rectocele, cystocele, and prolapse. On examination these conditions were found and nothing else. I recommended a plastic operation, but the patient was not quite willing to accept the advice. She was in the neighborhood of 50 years of age and dreaded an operation at her age. I did not see her again for more than two years. Last autumn she returned to my office with the same story. There were the symptoms of prolapse, bearing-down pain, backache, frequent micturition, and a sensation as though her uterus were protruding from the vagina. Examination revealed the same conditions as before, except that they were a little worse; there was a large rectocele, a cystocele, and a decided descent of the uterus. I repeated the advice about operation, which she seemed disposed to accept. She disappeared again, however, and I saw nothing of her for some time. Six or seven months later she again appeared, so much more uncomfortable that she decided to enter the hospital at once. The day before the operation, more as a matter of form, I made an examination. As I did so she said there was a change in her condition lately, in a profuse and rather bad-smelling vaginal discharge. This statement did not attract my attention, as I thought it was a senile leucorrhœa. I was therefore much surprised to find a large growth projecting from the

posterior vaginal vault, and so friable that I could break it down with my finger nail. A large piece was thus removed, which the microscopic examination showed to be a tubular adenoma. In spite of my description of the case as a tumor springing from the vaginal wall, Dr. Williams, who made the microscopic examination, naturally declared that it must be a rectal growth, as it was a glandular structure. I then made a rectal examination of the patient for the first time, and found a tumor about the size of a crab-apple projecting into the rectum as high up as my forefinger could reach. It was perfectly sessile. There had been no rectal symptoms, no hemorrhage, no pain, no mucous discharge, no symptom whatever to call attention to the bowel, and yet the woman had had the tumor for some time. She must have had it at the time of one of my examinations.

This discovery, of course, altered my proposition in regard to the operation. In addition to the plastic operation it was necessary to remove the tumor. I slit the recto-vaginal septum by putting one blade of the scissors in the vagina and one in the rectum until I reached the tumor. It was necessary to open the peritoneal cavity. The gaping wound gave a good exposure of the tumor, permitting the rather easy dissection of all its ramifications from the recto-vaginal septum. The incision in the peritoneum was closed, the recto-vaginal septum and the sphincter ani were firmly united. The woman made a good, although a rather tedious, recovery. There was a persistent recto-vaginal sinus, which finally, however, almost closed. She reported at my office within a week, seven months after the operation, in a good condition. Her weight is good; she feels well; there are no local symptoms, except some vaginal leucorrhea, the result of a very small sinuous tract between the vagina and the rectum. Upon rectal examination there is no trace of a recurrence, so that I feel hopeful about the permanent cure; although it is still a little doubtful, because in removing the tumor it was necessary to dig out portions of it which ran into the connective tissue laterally, and I was not quite confident that it was entirely removed.

Dr. Williams furnished me a rough sketch of the tumor. It was cut up pretty thoroughly in his examination, so that it is not available for demonstration, and I am therefore particularly glad that Dr. Shober is able to present a typical tumor for our inspection along with the specimens under the microscope. The tumor in my case had nothing of the arbor vitæ arrangement seen in Dr. Shober's specimen and had no pedicle.

DR. JOHN B. SHOBER read a paper entitled

TUBULAR ADENOMA OF THE RECTUM.¹

DR. HIRST.—I would like to ask Dr. Shober if, in his review of the literature on the subject, he has come across a case like

¹ See original article, p. 28.

mine, in which the tumor not only grew into the rectum but also toward the vagina. The main extension of the tumor in my case was into the vagina, which strikes me as most peculiar.

DR. SHOBER.—The tumor is a soft, spongy mass and looks like a rare coral formation. In the microphotographs are seen large capillary vessels filled with blood corpuscles.

The clinical symptoms, therefore, are readily explained. The mucoid discharge comes from the exposed epithelial cells, and the hemorrhages come when the villi, through which course these large capillary vessels, break away. This woman at times bled more than a pint. She was so exsanguinated that when she came to the hospital it was not considered safe to operate for two weeks.

As to the question of malignancy, it is possible that the epithelial cells break through into the stroma of the villi. Having gained access, they penetrate to the attachment of the rectal wall, and in that way the epithelial cells proliferate and produce malignancy. If taken in time they might be considered as benign.

The operation was simple; the tumor was protruding from the anus by reason of a preparatory enema. A clamp was placed upon the pedicle and the tumor cut off. The patient being a woman and the perineum being torn, it was easy, by placing the hand in the base of the vagina, to turn the whole mass out and control hemorrhage by forceps. The edges of the wound were brought together with continuous catgut sutures.

I think that Dr. Hirst's case is unique. All the cases I have met with in literature, and my own case, were non-penetrating, outward growths.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY.

Meeting of November 28, 1899.

The President, GEORGE T. HARRISON, M.D., in the Chair.

DR. GEORGE H. MALLET reported a case of

LACERATION THROUGH THE SPHINCTER REPAIRED BY KELLY'S METHOD,

as described in a paper read last May before the American Gynecological Society.

He found it very easy to dissect out the ends of the sphincter muscles and to introduce the buried catgut sutures. It occurred to him that the apron hanging down might better

have been sewed across as in Whitehead's operation. The patient had a tag when she got up, but it did not give her any trouble. The final result is perfect.

DR. BACHE MCE. EMMET.—I heard Dr. Kelly read his paper at the meeting of the American Gynecological Society, and also the discussion which followed it, and I recall that Dr. Johnstone, of Cincinnati, took exception to the operation being a novel one and referred it back to the operation of Tait. As I understand it, however, Tait never undertook to bring down this end so as to make a covering on the bowel side. He dissected a flap to enlarge the area for union. Dr. T. A. Emmet had already greatly improved the operation by bringing together the ends of the sphincter muscle, and his results were very successful. Fistula cannot possibly result if the sutures are carried well down behind the muscle, thus getting together broad surfaces. If proper adjustment is made nothing can pass between them. I think there is a great deal in Dr. Kelly's description of the operation which does not materialize in the procedure; in other words, that he advocates a very roundabout way of doing a simple thing, and that the result of the operation does not differ from the ordinary flap operation for repair of the perineum. I am emboldened to say this because a surgeon who had been a student of Kelly recently saw me do the operation as I always do it, and he said that he could see no difference between Dr. Emmet's operation and that of Dr. Kelly. What Dr. Kelly speaks of as a flap is represented by the tissue which we all leave over the vertical portion of such an operation. If you pull on the upper or lower portion, you may represent it as a flap. I still feel that we are not called upon to change a method which has given such good results as has that of Dr. Emmet. Theoretically, the operation described this evening is one in which infection is less likely to occur; but we will get just as good results if we follow the rules laid down by Dr. Emmet.

DR. LEROY BROWN.—I have read with interest and care the article mentioned. I do not think the suggestions of Dr. Kelly are any improvement on the methods already in existence. I have done my share of operations for the repair of complete lacerations through the sphincter, have always followed one method, and have never had a failure or a sinus. At first I thought this was due to "good luck," but I now think it is due to the method of operation which I employ.

DR. P. F. CHAMBERS.—The operation referred to by Dr. Brown I have employed in some ten or twelve cases, and I have never failed to get a good result. Lately I have been using chromicized catgut in the rectum, instead of silkworm gut, because I had trouble in removing the latter.

DR. A. PALMER DUDLEY.—The operation described by Dr. Kelly consists in denuding a flap in order to get down to the sphincter muscle, so that he can unite its ends by means of buried sutures, but, as Dr. Emmet says, it seems like going a long way around to get home.

I congratulate Dr. Mallett on the good result obtained, but think that in time he will abandon the method and return to the more simple procedure.

I denude as does Dr. Chambers, use a continuous suture of No. 2 chromicized catgut, and have yet to score a failure, although I have done the operation on women who for twenty-five years had no control over the rectum.

DR. L. G. LANGSTAFF reported a case of

PROLONGED RETENTION OF URINE.

Mrs. J. M., 27 years of age, mother of two children, having had an abortion at two months and being again pregnant in the third month, was first seen by me during the night of November 16, 1897. She then complained of pain and distension in the region of the bladder, and stated that she had not voided urine for twenty-four hours or more. On palpation the bladder was found to be distended. A No. 8 rubber catheter was passed into the bladder, meeting with some resistance (as if by constriction), and a large quantity of urine, fifty-two ounces in all, was drawn off. The urine appeared to be normal, and a chemical examination proved it to be so. Inquiry into the cause of this retention elicited nothing. The patient was feeling in perfect health, was not of neurotic temperament or in the slightest degree hysterical. The retention had never occurred before and was not preceded by any symptoms whatever. The desire to urinate simply ceased, and she only sent for me when the pain from excessive distension occurred. The uterus was found to be in normal position, and no abnormal conditions of any kind were discovered. I prescribed a mixture containing potassium bromide and tincture of hyoscyamus in considerable doses, to be taken every four hours, and saw the patient twice on the following day, catheterizing her each time. On the next day she voluntarily voided her urine.

A few days later retention again occurred. The bromide and hyoscyamus seemed of no avail and was discontinued. For a few days following, retention requiring the catheter and voluntary voiding of her urine occurred alternately. On two or three occasions she allowed her bladder to become extremely distended before sending for me. Finally, after two or three days' intermission of this trouble, she had an abortion.

The interesting feature of the case to me lies in the fact that no apparent cause existed for the retention of urine. As she evidently aborted easily, it is not so much to be wondered at that the accident of abortion finally occurred, since this mishap may be occasioned in some women by almost any trivial cause.

I take it that a tonic contraction of the sphincter urethræ occurred by some disturbance of innervation of the bladder. Her neglect to seek relief before excessive distension probably caused the bladder to so press upon and displace the uterus that contraction and expulsion of its contents resulted.

As this is the only case of the kind with which I have met, it

would interest me to learn the experience of other members of the Society.

DR. N. G. BOZEMAN.—I have seen several cases of retention of urine. In one case the woman was supposed to have an ovarian tumor, and the attending physician had aspirated a fluid tumor posterior to the uterus. This tumor proved to be the bladder, which had become so distended that it reached up above the fundus and fell over back of it. There was no displacement of the uterus. I drew off by catheter a large basinful of urine. The condition had probably lasted some time, and the patient, without knowing it, had not been able to completely empty the bladder. The result was that there was a residuum of urine, which gradually increased until attention was called to it by the retention. This may have been the case in Dr. Langstaff's patient.

DR. J. E. JANVRIN reported a case of

REMOVAL OF THE SPLEEN FOLLOWED BY DEATH.

The patient was operated upon in October, 1898. I had seen her twice during the preceding summer at Cooperstown and was much interested in the case. She was apparently healthy, 45 years of age, and the mother of several children. There was a large tumor which filled the left abdominal cavity, extending up under the ribs and down into the pelvis. It had first made its appearance two years previously, and when I saw her was twice as large as a fetal head. My diagnosis was an enlarged spleen. There was no history of malaria, and an examination of the blood showed no plasmodium. On account of the immense size of the tumor, and because the tense condition of the abdominal walls made palpation difficult, I was in some doubt as to the diagnosis, and I persuaded her to come to this city and enter my sanitarium for operation. Dr. Polk and Dr. Goffe saw the case with me and confirmed my diagnosis of enlarged spleen. Dr. Goffe assisted me at the operation. I made a somewhat oblique incision on the left side of the abdomen and found, as I expected, an enormously enlarged spleen, which was afterward found to weigh seven and a half pounds. The vessels in the pedicle were carefully ligated and the spleen removed with the loss of scarcely half an ounce of blood and without any apparent shock. The procedure, including the putting of the patient under ether, lasted forty-five minutes from start to finish. The patient was put to bed in good condition with a pulse of about 80. I saw her in the evening, some hours later, at which time she was perfectly comfortable and in good condition, the pulse ranging from 88 to 90 and the temperature not even reaching 99° F. She did well until 2 o'clock the following morning, when she became suddenly restless. The pulse ran up and sighing respiration developed. I was hastily sent for at 4 o'clock, and when I reached her she was almost unconscious and the pulse rate was 120. There was no rise of temperature, but the pulse had run up from 90

to 120 within two hours. I immediately suspected secondary hemorrhage and sent for Dr. Goffe, with the intention of reopening the abdomen. Meanwhile I injected salt solution into the rectum and under the skin, also used strychnine and brandy freely hypodermatically, but without avail, for she died in an hour's time. The abdomen was at once reopened and the cavity found absolutely dry. I can give no reason for her sudden death other than that it was caused by what we call secondary shock. In looking up the literature of the subject I find that only about one-third of the patients from whom the spleen is removed survive the operation.

The appended report of the pathologist who examined the spleen is interesting, but does not throw much light upon the cause of the enlargement:

"DEAR DOCTOR:—I should have written a week ago, stating that I should need some time to send an opinion on the spleen that would be of any value. The extra time required was for the purpose of comparing the sections of this case with those from other forms of splenic enlargement. I found it necessary to compare it, for instance, with malarial spleens, for this specimen contained a good deal of pigment. But your case is not malarial, being essentially different from any of six malarial cases that I have been able to find here (the Department of Pathology of the College of Physicians and Surgeons), three of which were cut this week. Neither is it like two cases of splenic tumor resulting from syphilis. In some respects it resembles the spleen of leukemia, in five cases of which I have sections of the spleen for comparison, but your case lacks one essential feature of the leukemic spleen, *i.e.*, hypertrophy of the lymph nodules.

"The only thing that remains is the form of hyperplasia seen in the so-called 'splenic anemia,' which is regarded by some as the splenic form of Hodgkins' disease. This, I think, is the true nature of the enlargement of the organ in your case. Histologically, it shows *hypertrophy of the pulp tissue only*, the Malpighian bodies being atrophic. It is not sarcoma, because the sinuses, capsule, and Malpighian bodies are not obliterated. The new cells are large mononuclear cells, identical in appearance with the large mononuclear leucocytes of the spleen.

"The point that remains undecided in my mind, and on which the books do not help, is whether the spleen of Hodgkins' disease differs from that of 'splenic anemia.' I have no specimens of the latter disease, as seen in many young subjects, for these cases do not die in hospitals.

"The closest diagnosis I can give is *acute or subacute simple hyperplasia of the splenic pulp tissue*, of undetermined origin.

"Very sincerely yours,

"JAMES EWING."

DR. DUDLEY.—Some years ago, at the old Post-Graduate

Hospital, Dr. Nilsen removed the spleen from a patient who is still living. In that case the spleen was not as large as the one removed by Dr. Janvrin, but the pedicle was so long that the spleen was found lying in the pelvic cavity behind the uterus. One year later I removed the spleen from a boy who had a nodular liver. It was a case of leukemia and the boy died soon after. The spleen weighed about four pounds. From the condition of the liver as seen at the operation, it was a foregone conclusion that he would die. Later I learned that the trouble was of syphilitic origin.

DR. EMMET.—I would like to ask Dr. Janvrin if an examination of the heart tissue was made in his case. At times a moderate amount of shock will prove fatal in persons in whom the heart is not sound. As to secondary shock, is it not a fact that nowadays pathologists do not recognize such a cause of death? We all see cases, of course, in which death comes early and without apparent sepsis, which we would like to explain in this way, but I think that most pathologists hold there is no such thing as secondary shock.

DR. JANVRIN.—No examination of the heart was made, but I think it was in good condition, for I had watched the patient carefully for some time prior to operation and noticed nothing wrong. I recently read a paper written by Dr. Hartley in which a number of cases—some his own—of removal of the spleen are given. About one-third of the patients recovered. My opinion is that death was due to shock in my case, for no other cause was discovered. There was no blood in the pelvic cavity and it was too early for sepsis. Moreover, the acceleration of the heart action was gradual.

DR. JOHN ASPELL then reported two cases of

FIBROMA WITH TWISTED PEDICLE.

Instead of entering into a dissertation on the etiology of twisted pedicle in myomatous tumors, I have thought it wiser, in view of the fact that the two cases that are to be reported have had a medical history somewhat similar, and therefore probably similar etiological factors, to lay some stress on the importance of an early recognisance and a prompt relief by means of surgery, inasmuch as a good prognosis can only be given when a careful and accurate diagnosis has been made beforehand, and to urge that a firm stand be taken in dealing with abdominal tumors that grow worse the longer they remain in place.

The points of similarity in the histories of the cases have been one reason for presenting the specimens for your inspection, and the advanced condition of peritonitis that may be present with mild subjective symptoms is another reason.

The first patient, a maiden in comfortable position in life, well nourished and of previous good health, just at the time of life when uterine functions are expected to cease, had a severe attack of abdominal pain that lasted three days. She gave the story of having had three similar attacks during the year.

This last onset was sudden, accompanied by a slight chill and fever. In the course of twenty-four hours, while the pain became less severe, the fever was more pronounced. With the increase of fever came an accelerated pulse and the usual local symptoms of peritonitis. There was no vomiting, however. On the third day the skin assumed a darker hue, and a dull and listless manner hastened the decision in regard to a laparotomy that the patient was only too anxious to put off. Here the reason for operating was, first of all, the presence of a myomatous tumor and the indication that some change was evidently taking place in the growth itself.

Abdominal section revealed a tumor of a pearl-white appearance, somewhat calcareous, attached to the uterus by a pedicle about the breadth of three fingers. The summit of the tumor was attached to the parietal peritoneum by old lymph discs. There was some dulness to the peritoneum, with very little excess of fluid.

The history of the second patient was as follows: She was a maiden, just beginning the menopause, and thought herself in perfect health up to October 27 last, when she was informed of the presence of an abdominal tumor by her physician. On the date in question she had a severe attack of abdominal pain extending over the whole abdomen. She was treated one week at home and then advised to place herself under the care of a surgeon for the removal of the abdominal tumor. On the 3d of this month she was placed in my service. On the morning of the 4th, when I saw her, the expected menstruation had appeared, and an examination by abdominal palpation disclosed a hard tumor extending up to, and for about four inches to the left of, the umbilicus. There was no distension or tenderness. The temperature and pulse being normal, there was no apparent reason why an operation should be hastily performed. The following day the patient was comfortable and menstruating, the usual amount for her. At 3 o'clock in the morning of the 7th she suddenly vomited about a pint of a yellowish, watery material that had a fecal odor. At 4 o'clock she vomited again, less in amount, but fecal. There was no more vomiting up to the time of operating, which was 9 o'clock. Considering the condition desperate enough to summon a consultant, I telephoned Dr. Cleveland for an opinion. The patient was placed under ether on his arrival, and his advice was an immediate operation.

Appreciating the significance of the character of vomiting, I was prepared to find a constriction of the lumen of some part of the small intestines, but hardly for the advanced stage of peritonitis that was found.

The tumor itself was irregular in shape, about seven inches across its longest diameter, almost black in color, and adherent to the peritoneum immediately under the line of incision. Its entire surface was embedded in a film of thick, grayish lymph. The pedicle was about the breadth of two fingers and containing very little fibrous tissue, so that its removal was simple

enough. That part of the small intestines nearest the tumor was matted by a soft, dark grayish, jelly-like material readily separated by the fingers. There were spots of gangrene at the various points where the coils overlapped. The imprisoned intestines were purple and swollen. It is useless, of course, to narrate the subsequent history.

With an imperfect previous history it is not always a simple matter to detect the gravity of a given condition. There was no method of ascertaining it here. But, in the light of retrospection, the patient would have had a far better chance for recovery if an operation was performed soon after the sudden attack of pain, just as a case of appendicitis has a better chance if operated upon when a sudden attack of pain comes on after a short period of convalescence. The positions are the same: anticipate the peritonitis and dissolution will be anticipated.

Had I had a clear history I would have operated without any delay; but the physical appearance did not warrant any haste, and the reserve that a sick woman demands at the time of menstruation prompted me to wait till after the period. I am satisfied that the peritonitis had even then advanced so far that an operation would have been hopeless.

The conclusion I would draw, in the light of these cases, is: that pedunculated fibromata existing in women about entering the menopause should be operated on speedily because of the danger of starvation due to the interruption of blood supply, the pedicle shrinking at the expense of the tumor. Whether the growth becomes edematous or not, the intestinal movements may distort an already top-heavy tumor.

DR. CHAMBERS.—I remember seeing a case of twisted pedicle some years ago in the practice of Dr. Thomas. The patient was a Southern woman who came to New York for operation, and during the journey she became very much worse, so that she was in a very bad condition when she arrived. Operation was performed at once and it was found that the tumor was almost black. There were two distinct twists in the pedicle. I do not remember whether or not there was any peritonitis present, but I recall clearly the appearance of the tumor.

DR. EMMET.—If it could be determined when these tumors become cut off from their blood supply, immediate operation could be performed and a fatal result averted. In my own practice I saw an instance of twisted pedicle in a case of cyst of the broad ligament in which sepsis set in rapidly. There were no less than seven twists in the pedicle, and the tumor was brought up in front of the uterus and was adherent to it, to the bladder, and to the intestines. It was carefully peeled off without injury to the intestines, but septic peritonitis developed immediately.

In regard to fibroids free in the abdominal cavity, which we have all seen, they may have become so through a twisted pedicle and have retained their life because they have derived nourishment from the adhesions formed with other viscera before the pedicle became entirely severed. I remember seeing

seven loose fibroids in one case, and I made it the subject of a paper. Presumably all had originally been attached to the uterus, but had dropped off after becoming attached to the parietal walls or elsewhere, without giving rise to any symptoms. One of the tumors was nearly as large as one of those presented this evening by Dr. Aspell. In another case, that of an ovarian cyst, the pedicle was thin, drawn out like a slender adhesion, and the tumor was receiving nourishment from what I took to be the urachus. This was a mass fully three fingers in volume and six inches in length, which attached it to the fundus of the bladder. I divided it close to the cyst and did not seek further to ascertain what it was. In this case, separation without torsion would have taken place shortly had operation not been performed, for the tube pedicle was drawn out until it was the size of a thread.

DR. DUDLEY.—I would like to ask Dr. Aspell if in the first case the gut was not imprisoned, and whether this, and not the choking of the fibroid by twisting of the pedicle, was not the cause of the peritonitis. The fact that the patient had fecal vomiting so early would seem to indicate that the bowel had become imprisoned first. The shape and size of the tumor are such that I do not see how it could rotate in the pelvic cavity and cause peritonitis and fecal vomiting at such an early stage.

DR. ASPELL.—My impression is that the tumor became constricted and necrotic. It was absolutely blocked. The pressure of the tumor against the parietal wall had imprisoned the intestine. I think, however, that if obstruction of the intestine had been the only trouble the patient would have recovered. But, of course, Dr. Dudley's point may be well taken. It is difficult to find out which was the primary condition. All I can say is that the woman had severe abdominal pain and pelvic peritonitis.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Stated Meeting, October 4, 1899.

The President, MR. ALBAN DORAN, in the Chair.

DR. WILLIAMSON read a paper on

THE PATHOLOGY AND SYMPTOMS OF HYDATIDIFORM DEGENERATION OF THE CHORION.

The author reviewed briefly the earlier views of the pathology of the condition. He then described the development of the chorionic villi and the changes which occur in them when

undergoing myxomatous degeneration, the changes as observed by himself agreeing almost entirely with those previously described by other observers. The "myxoma fibrosum" of Virchow was described, and the author gave his reasons for regarding this condition as closely allied with hydatidiform mole. The question of the priority of the degeneration of the chorion or the death of the embryo was discussed, and the conclusion arrived at that degeneration of the chorion usually precedes the death of the embryo. The relation of hydatid moles and deciduoma malignum was discussed. The author gave reasons for doubting the doctrine of Spiegelberg with regard to the fetal origin of the hydatidiform disease, and quoted cases of repeated hydatidiform molar pregnancies occurring in the same woman. The usual naked-eye appearances of the mole were described.

The author then endeavored to ascertain (1) the frequency of the occurrence of the condition, and (2) the effects of (a) age, (b) multiparity, (c) rapid child-bearing upon its production; concluding that (1) its approximate frequency may be once in 2,400 pregnancies; (2) that hydatidiform pregnancy may occur at any time during the child-bearing period, the age of the woman having very little influence; (3) that the condition is more frequent in those who have borne few children than in those who have borne many; (4) that it is not the rule for previous pregnancies to have followed upon one another with great rapidity. An inquiry was then made into the presence or absence of the usual signs and symptoms of normal pregnancy under the following heads: (1) amenorrhea, (2) vomiting, (3) activity of breasts, (4) blue coloration of vaginal mucous membrane, (5) softening of cervix, (6) uterine tumor, (7) uterine tumor and fetal heart sounds. The conclusion was that all these symptoms and signs are usually present excepting the uterine souffle and fetal heart sounds, but sometimes these may be heard; whilst, on the other hand, the only sign which is constantly present is enlargement of the uterus.

The distinguishing features of the condition were then described under the following heads: 1. The size and other physical characters of the uterus. Two classes of cases were shown to exist: (1) those in which the uterus is larger than would be expected from the probable duration of the pregnancy; (2) those in which the uterus is smaller. Another feature sometimes present, and of importance, is uterine tenderness. 2. Vaginal discharges, with or without the cysts. 3. Hemorrhage.

The author then discussed the diagnosis, the conditions likely to be mistaken for hydatidiform mole being: (1) concealed accidental hemorrhage and placenta previa; (2) the discharge of a pelvic hydatid through the vagina; (3) hydramnion, especially if combined with hydrorrhea gravidarum. Cases in which difficulty has arisen were recorded. The complications met with were described: 1. Albuminuria, a frequent complication. Two forms are to be distinguished: (a) One

form in which the prognosis is good, in which blood and epithelial casts are not present in the urine; (b) one form in which the prognosis is bad and in which these structures are found in the urine. 2. Hemorrhage, seldom fatal in itself. 3. Sepsis; sapremia, septicemia, and pyemia all being frequent complications.

Prognosis.—The mortality of the whole 25 cases was 20 per cent. The mortality of the 10 consecutive cases from St. Bartholomew's Hospital was 30 per cent.

DR. HERMAN thought Dr. Williamson's analysis of his cases was exceptionally valuable. He (Dr. Herman) was surprised at the high mortality Dr. Williamson reported. He did not think the mortality among cases of this disease in the London Hospital anything like as high. His own experience was that in most cases, when the cervix was dilated and ergot administered, the mole was expelled and that patients got well. He did not remember ever having had to perform any intrauterine manipulation to get away such a mole. In a few cases the existence of myxomatous degeneration had been suspected, but in most it had not been thought of until the characteristic vesicles had been seen in the discharges.

THE PRESIDENT called attention to the frequency of uncontrollable vomiting in association with hydatidiform mole; cases illustrating this had also been published by Brindeau and Bué. Keiffer traced vesicular mole to proliferating arteritis, which modified the development of the products of conception; this pathological change he attributed to the abuse of emmenagogues early in pregnancy. Neumann, Marchand, and Ludwig Fränkel brought forward strong evidence that deciduoma developed from relics of hydatidiform mole. Marchand was also a strong supporter of the molar theory as to the origin of deciduoma, dissenting from the opinion freely expressed at a meeting of the Obstetrical Society in 1896 and since then supported by Veit.

DR. GRIFFITH referred to the rarity of myxoma fibrosum as in his opinion more apparent than real, the condition being easily overlooked in cases of fleshy mole unless carefully looked for. He asked if any Fellow present could say he had diagnosed, not merely suspected, a case in the absence of the extrusion of the characteristic cysts. He referred to the danger of perforation during attempts to remove entirely the mole.

DR. HERBERT ROBERTS asked whether Dr. Williamson considered the condition to be of maternal or fetal origin, and whether he regarded it as a new formation or as a degeneration. He referred to Dr. Eden's observations and pointed out that vascular degeneration had been found in the villi of a normal placenta. He asked whether any such changes had been observed in the stems of the degenerated chorionic villi. Dr. Roberts thought that Dr. Williamson had not considered fully enough the possible relation of hydatid moles to deciduoma malignum.

DR. HERBERT SPENCER said that Dr. Williamson's method

of determining the frequency of hydatid degeneration by comparison with the number of cases of midwifery attended from the same hospital as that in which the moles occurred, was a very fallacious one, and the proportion thus obtained was of no value whatever in estimating the rarity of the affection. The diagnosis from accidental hemorrhage and placenta previa was sometimes very difficult, and in the absence of the cysts (which were rarely passed) was generally of the nature of a guess. He regarded abdominal ballottement as of some value in the diagnosis, a fetus being rarely present in cases of hydatidiform mole.

DR. JOHN PHILLIPS wished to emphasize the difficulty of diagnosis between concealed hemorrhage and vesicular mole. He had seen several cases treated, and was not aware of any septic complications whether treated by tents or artificially emptying the uterus. He had never met with a case in which the cysts were passed in the discharge during any period of the illness.

DR. LUDWIG FRÄNKEL (Breslau) thanked the Society for having permitted him as guest to hear Dr. Williamson's interesting communication. The author had only briefly touched upon the relation of hydatidiform mole to deciduoma malignum. If he understood the author rightly, he agrees with the opinion expressed in the form of a resolution at this Society four years ago that deciduoma malignum is a sarcoma of the uterus of pregnancy, and, like Virchow, regards the mole as myxoma of the chorionic villi. On the other hand, the great majority of German authors regard it as surely proved that deciduoma malignum arises from the epithelium of the chorionic villi, because the connection of the growth elements with the epithelial covering of the villi has been in several cases directly observed under the microscope. Hydatidiform mole is, according to recent researches, not a true myxoma, but a myxomatous degeneration of the stroma of the villi with great overgrowth of the chorionic epithelium: it is really a *chorio-epithelioma benignum*. If the remains of hydatidiform mole undergo malignant development, there occurs a *chorio-epithelioma malignum*. Dr. Fränkel referred to a case of his own, and another of which he had read, of the association of hydatidiform mole with double ovarian cystoma.

DR. HEYWOOD SMITH said he thought there was a specimen of hydatidiform degeneration of the chorion at the Hospital for Women, and as far as he remembered it was diagnosed as such.

The following specimens were shown: MR. J. B. SUTTON: 1. A case of rotation and impaction of a myomatous uterus; 2. A tumor of the mesometrium weighing twenty-two pounds; 3. A myomatous uterus, weighing twenty-six pounds, successfully removed from a woman 74 years of age. MR. ROBERT WISE: A photograph of a very stout woman, age 49, with large, pendulous uterine tumor, and a lipoma as big as a melon below the right breast.

Meeting of November 1.

The President, MR. ALBAN DORAN, in the Chair.

DR. P. D. TURNER, of Ryde, read notes on

TUBERCULOSIS OF THE FALLOPIAN TUBES AND UTERUS,

based on the examination of the genital organs of 27 consecutive cases of phthisis in female subjects in the postmortem room of the Brompton Hospital. In all cases the naked-eye appearances were noted and a complete microscopical examination was made. The results demonstrated the frequency of tuberculous lesions in these organs in cases of phthisis, and some of the lesions being in a very early stage afforded evidence as to the mode of infection and the development of the disease.

Tuberculous lesions of an undoubted character, demonstrated by microscopical structure and the detection of the tubercle bacillus, were found in 5 cases (18.5 per cent). In 1 of these the tubes alone were involved, in 2 the tubes and the body of the uterus, in 1 the tubes, body, and cervix of the uterus, and in 1 the tubes, body of uterus, and ovary were affected. All 5 cases presented some degree of intestinal ulceration. In 7 of the remaining cases there was evidence of interstitial or catarrhal salpingitis, and in several of these the condition was suggestive of a tuberculous origin; but no positive evidence to that effect was forthcoming.

The author gave a detailed description of the lesions met with, and inferred that the usual form of tuberculous salpingitis appeared to be due to the entry of bacilli into the open ends of the tubes from the endometrium; infection through the blood supply probably also occurred, but much less frequently. The cervix was similarly affected. The ovary did not form the same nidus and was comparatively rarely diseased in these cases.

DR. PETER HORROCKS said it was unexpected to find such a large proportion of patients with undoubted pulmonary phthisis affected by tuberculous mischief of the uterus and other generative organs. He inquired whether these patients had complained in any way of symptoms associated with the generative organs. These cases did not bear out Louis' law that if tubercle was found in any part of the body after puberty it was sure to be found in the lungs. He related details of a case of tubercle of the cervix uteri which was mistaken for sarcoma.

THE PRESIDENT suspected that in the cases where Dr. Turner detected hydrosalpinx the tube was first closed by local peritonitis and then infected with tubercle, whilst in many other cases where the tube was still unobstructed the tubercular disease began in the tube as a true tubercular salpingitis. He referred to Kleinhaus' statement that the tube was the part of the female genital tract the most often affected. In

acute tubercular salpingitis it appeared that the bacillus was found in abundance, whilst giant cells were scanty; in the chronic form the giant cells were abundant and the bacilli scanty. The balance seemed even in Dr. Turner's cases, possibly because subacute exacerbations were frequent.

DR. TURNER, in reply, said that, as far as he knew, none of the cases presented any symptoms whatever referable to the lesions in the generative organs. The great relative frequency with which the lesions had been found he attributed to their having been minutely searched for.

DR. HERMAN, in a paper on

TWO CASES IN WHICH LIFE APPEARS TO HAVE BEEN SAVED
BY ANTISTREPTOCOCCIC SERUM,

said that judgment as to the therapeutic value of the antistreptococcic serum was difficult, because we know not yet enough about the effects of the streptococcus. If the antistreptococcic serum failed, it may be because it is used too late, or because the patient had been poisoned by some microbe other than the streptococcus. In some cases published as examples of success from the antistreptococcic serum it had seemed to the author, from reading the reports, that some of the patients were never in danger, and that in some recovery was to be attributed to other therapeutic measures (such as removal of retained placenta) used at the same time as the serum. For these reasons it seemed to the author impossible at present to draw conclusions as to the value of the serum from statistical tables.

The author submitted two cases in which, in his opinion, the symptoms were such as to warrant a very unfavorable prognosis, but nevertheless the patients got quite well after antistreptococcic serum.

The first was a case in which a severe operation was followed by great prostration, from which the patient recovered, but the rally was followed by renewed prostration, such as in the author's former experience had ended in death. With antistreptococcic serum the symptoms quickly improved and the patient got well.

The second was a puerperal case, in which the occurrence of three severe rigors on successive days led the author to think that the patient was suffering from pyemia and that secondary abscesses, etc., might be expected. With antistreptococcic serum the symptoms improved, and the only development was a small patch of cellulitis which ended in resolution.

The author was aware of the difficulty and uncertainty of prognosis in cases such as those now reported, but he submitted that in the present state of our knowledge it was only by the consideration of cases such as these that judgment could be formed.

DR. CLAPHAM narrated the case of a woman aged 28 who was delivered by a midwife on November 8 of last year. On the third day the temperature rose to 103°. The uterus was

explored and washed out with sublimate solution. The temperature next day was normal, but on the fifth day it again rose. On the sixth day it reached 105° , pulse 130. The uterus was scraped and scrubbed with iodine. On the seventh day 15 cubic centimetres of serum were injected, and afterward five more injections of 10 cubic centimetres were made at daily intervals. During this time the temperature rose daily to 105° , falling to 102° . The patient recovered after a tedious convalescence.

DR. PETER HORROCKS described a case successfully treated with serum which so impressed him that he felt very enthusiastic about the treatment. He had, however, since seen many cases treated by the serum, and on the whole was bound to admit that he had been disappointed. Some of the cases were described, and allusion was made to pain caused by the injections. In spite of the disappointing results so far, he recommended the continuance of the serum injections. The solution should be clear and injected with all aseptic precautions, and then was quite safe and harmless and even nutritive.

DR. CULLINGWORTH spoke of the difficulties inherent in all inquiries into the effect of remedies. He felt it right, if the symptoms persisted after exploration and treatment of the uterus, to advise the administration of the serum. He mentioned a case in which, after removal of pieces of adherent placenta, the temperature rose within twenty-four hours to 104° . Within twelve hours after injection of the serum the temperature had fallen to normal. On the other hand, in another case twelve or fourteen injections had been made without any appreciable effect. Until we had more precise knowledge there were sure to be failures, but the serum was, as yet, the only antidote to puerperal fever that we possessed.

DR. AMAND ROUTH could only recall one successful case where he had ordered the serum and had done nothing else. This woman had had a rigor with very high temperature on the third day of the puerperium, and when seen by him on the eighth day was apparently dying. The uterus was fixed and the pelvis full of cellutitic deposit. After injections of the serum the patient recovered after a protracted convalescence and the subsequent development of a pelvic abscess. He was not aware of evidence to prove that the injection of sterilized serum was in itself harmful.

DR. DRUMMOND ROBINSON had found the results of bacterial investigation of puerperal septic cases to be very unsatisfactory. He therefore disagreed with those who thought that the serum should only be employed in cases in which it was possible to demonstrate the presence of streptococci. He had treated several cases with the serum, but in only one case did the slightest benefit result—a case of puerperal sepsis with membranous vaginitis, first treated with serum on the eleventh day.

DR. ROBERT WISE thought serum treatment would rarely be required if the conditions were recognized early and modern local and general treatment were applied.

DR. RIVERS POLLOCK said the presence of several varieties of micro-organisms might account for the failure of the anti-streptococcic serum.

DR. EWEN MACLEAN thought that one good result of the present discussion would be the checking of the indiscriminate use of the antimicrobial serum. He mentioned that it had been experimentally proved that the serum of an animal immunized to the effects of one bacterium might provoke increased virulence in the effect of another, and it was quite conceivable that the injection of the antistreptococcic serum in cases which were not caused by that micrococcus might be harmful rather than helpful.

DR. HERBERT SPENCER had given at the August meeting of the British Medical Association¹ the results of an extensive inquiry into the subject of serum therapy. The results of that inquiry were unfavorable to the treatment, and were corroborated by the similar investigation by the American Gynecological Society. He agreed with Dr. Eden in regarding it as empirical and unscientific to give the serum in cases where no streptococcus was present. It was, moreover, not free from danger, several deaths having occurred from the injections.

THE PRESIDENT agreed with Dr. Spencer as to the high importance of the report on antistreptococcic serum published in the September number of THE AMERICAN JOURNAL OF OBSTETRICS. It should be carefully studied, as it not only seemed to demonstrate that the employment of the serum would not materially improve the results in the treatment of streptococcus infection, but implied that the use of the curette greatly increased the mortality.

The following specimens were shown: MR. TARGETT: Tuberculous salpingitis. DR. P. D. TURNER: Tubercle of uterus.

REVIEWS.

DIE DIAGNOSE UND BEHANDLUNG DER GONORRHEA BEIM WEIBE. VON ADOLF CALMANN. Aus der gynäkologischen Abteilung des Allerheiligen Hospitals in Breslau: primararzt Dr. Asch. Berlin: S. Karger, 1899.

In this monograph the author describes the clinical symptoms of gonorrhea in woman and the most useful therapeutic measures. The diagnosis of gonorrhea becomes only positive after a bacteriological examination has demonstrated the presence of gonococci. Clinical symptoms alone are often misleading. In chronic cases bacteriological examination is frequently negative; in these a careful history should be obtained.

Regarding the bacteriological examination the author agrees with Bumm, Wertheim, and Wasserman, and believes that the

¹ British Medical Journal, October 14, 1899.

making of cultures has no advantage over the much simpler and equally certain methods of staining. In urethral infection early local treatment is advised. Alumnol and argonin are preferred; good results were obtained even in the most obstinate cases. Prolonged irrigation with one per cent solution of protargol or nitrate of silver has also been proved satisfactory.

The vulva in the adult is rarely the seat of infection, owing to the greater firmness and resistance of the epithelium. In children, however, gonorrheal vulvitis is not rare by any means. Condylomata which are commonly considered pathognomonic of gonorrhea are not necessarily due to the infection. Gonorrheal vaginitis in the adult is also an exception; in childhood, however, the vagina is the usual seat of gonorrhea.

The treatment advocated consists in irrigation with dilute solutions of chloride of zinc and permanganate of potash, also local applications of nitrate of silver in five to ten per cent solutions. Gonorrheal infection of the uterus indicates early and energetic treatment; procrastination gains nothing and loses much. Many methods and many drugs have been tried, but few have stood the test of time. Concentrated solutions of chloride of zinc, formalin, and tincture of iodine are advocated.

Chloride of zinc was found useful in multiparæ and in gonorrhea accompanied by profuse secretions. The applications must be repeated every month or two. Formalin is advised in the chronic forms of uterine gonorrhea, with scanty but purulent secretions and gonococci present. Tincture of iodine is used in virgins and after preceding zinc treatment. Gonorrhea of the adnexa, peritoneum, rectum, etc., are extensively discussed, proving the author's experience and careful investigations.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Vol. III., September, 1899: Diseases of the Thorax and its Viscera, including the Heart, Lungs, and Blood Vessels; Diseases of the Skin; Diseases of the Nervous System; Obstetrics. Pp. 440. Vol. IV., December, 1899: Diseases of the Digestive Tract and Allied Organs, the Liver, Pancreas, and Peritoneum; Genito-Urinary Diseases in the Male, and Syphilis; Fractures, Dislocations, Amputations, Surgery of the Extremities, and Orthopedics; Diseases of the Kidneys; Physiology; Anatomy; Hygiene; Practical Therapeutic Referendum. Pp. 408. Philadelphia and New York: Lea Brothers & Co., 1899.

These two volumes complete a quarterly digest for the year 1899 which is a leader in its class. In Vol. III., William Ewart, of St. George's Hospital, London, discusses Diseases of the Thorax and its Viscera. This section includes notes on

methods of physical diagnosis, diseases of the respiratory tract, of the esophagus, of the thoracic duct, and of the heart, aorta, and great vessels. Diseases of the Skin are summarized by Henry W. Stelwagon, of Jefferson Medical College. William G. Spiller, Professor of Diseases of the Nervous System in the Philadelphia Polyclinic, presents an excellent and brief résumé of the recent articles upon subjects relating to his specialty. The remainder of the volume is devoted to Obstetrics, by Richard C. Norris, of the University of Pennsylvania. He treats, consecutively, pregnancy, its complications and its surgery, accidents in labor, the puerperium and its complications, and lactation.

Vol. IV. opens with a section by Charles G. Stockton, of the University of Buffalo, on Diseases of the Esophagus, Stomach, Intestine, Liver, Pancreas, Spleen, and Peritoneum. Genito-Urinary Diseases in the Male and Syphilis are in charge of William T. Belfield, of Rush Medical College. The chapter upon Fractures, Dislocations, Amputations, Surgery of the Extremities, and Orthopedics is furnished by Joseph E. Bloodgood, of Johns Hopkins Hospital. Diseases of the Kidneys are briefly treated by John Rose Bradford, of the University College, London. The volume also contains an outline of the advances in Physiology by Albert P. Brubaker, of Jefferson Medical College; in Anatomy by Frederick H. Gerrish, of the Medical School of Maine; and in Hygiene by Henry B. Baker, of the Michigan State Board of Health. It closes with a chapter devoted to Therapeutics and containing a number of prescriptions compiled by E. Q. Thornton, of the Jefferson Medical College.

THE MODERN TREATMENT OF WOUNDS. By JOHN E. SUMMERS, JR., M.D., Surgeon-in-Chief to the Clarkson Memorial Hospital; Attending Surgeon, Douglas County Hospital; formerly Professor of Surgery, Omaha Medical College, etc. Pp. 148. Omaha: Medical Publishing Co., 1899.

This is a clear, practical, well-written exposition of its subject, evidently the work of one who has had a liberal experience both as an operator and as a teacher. We can heartily recommend it.

LOVE AND ITS AFFINITIES. By GEORGE F. BUTLER, M.D. 8vo, pp. 133. Chicago: G. P. Engelhard & Co., 1899.

This is a dainty little volume, which deals with its subject in a manner ideally pure and elevated. It is essentially poetical and philosophical in its nature, and comes rather under *belles-lettres* than the more prosaic domain of medicine.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY. Vol. XXIV., for the year 1899. Pp. 520. Philadelphia: Wm. J. Dornan, 1899.

This volume contains the full text of the material which

came before the meeting at Philadelphia last May, an abstract of which appeared in this JOURNAL for July and August.

THE TRANSACTIONS OF THE EDINBURGH OBSTETRICAL SOCIETY. Vol. XXIV. Pp. 136. Edinburgh: Oliver & Boyd, 1899.

This volume of transactions contains the papers and discussions on obstetrical and gynecological subjects presented before this well-known society during the sessions of 1898-99.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Dimensions of the Pelvis in Various Positions.—A. Lebedeff and P. Bartoszewicz¹⁶ report to the Third International Congress of Gynecology and Obstetrics that in the so-called Walcher position the true conjugate is greater than in the horizontal position, sometimes as much as 3 millimetres, while in the position of hyperflexion it is diminished from 1 to 7 millimetres. The diagonal conjugate varies with the true conjugate. The antero-posterior diameter of the inferior strait is contracted in the Walcher position, and increased by hyperflexion from 3 to 11 millimetres. In cadavers of nulliparæ, or of women during pregnancy or after labor, the variability of the true and diagonal conjugates and of the antero-posterior diameter of the inferior strait is not noticeably different.

E. Pinzani states that in 102 cases in which the diameter between the promontory and lower part of pubis was measured by him in hyperextension, the obstetrical position, and Walcher's position, the difference between the first and second of these varied between 0 and 5 millimetres, averaging 1.9; between the second and third positions in 101 cases the average increase was 6.1 millimetres, the extremes being 2 and 12. In measuring 5 cadavers with reference to the diagonal conjugate, an average difference of 1.2 millimetres between hyperextension and the obstetrical position, and of 3 millimetres between the obstetrical and Walcher's positions, was noted. In 127 cases the distances between the iliac spines and between the crests were unchanged in 24, diminished in 22, and increased in 81 cases, an average of 5 millimetres.

Pestalozza has found that in the cadaver Walcher's position gives a maximum increase in the true conjugate of the superior strait of 5 millimetres. He believes that clinically the results are more favorable. *Bar* has found that while Walcher's position alters the diameters of both straits, these changes are slight and the position of no particular value. On the contrary, he has found the Trendelenburg position

useful in extracting the fetus after version. *Ziegenspeck* does not think the Walcher position has yielded the results expected. *Pinard* holds that in 10 per cent of the cases the so-called Walcher position causes no enlargement of the pelvis, and in the others it is increased only 3 millimetres on the average.

Indications for Obstetrical Operations.—At the Third International Congress of Gynecology and Obstetrics, held at Amsterdam, A. Pinard¹⁶ concludes that in the treatment of pelvic deformities the following operations are contraindicated: induced premature labor, any operation involving a conflict between the fetal head and bony resistance in any portion of the pelvis, and embryotomy upon the living child. The operations which should be employed in cases of contracted pelvis are temporary enlargement of the pelvis by symphyseotomy, pubiotomy, ischio-pubiotomy, or coccygotomy; conservative Cesarean section or the same with partial or total hysterectomy; embryotomy on the dead child.

The report of *Pestalozza* is excellently systematized. The chief indications for the various operations are as follows: Induced premature labor, not being applicable before the fetus has reached the second half of the eighth month, is limited to rachitic pelves whose true conjugate is not less than 75 millimetres, and generally contracted pelves above 80 millimetres. It is best adapted to young primiparæ, multiparæ in whom it has previously been successful or who have already been subjected to more severe obstetrical operations. These indications are for cases in clinics; in private practice its simplicity enlarges its field. Symphyseotomy is applicable to cases with a true conjugate of 70 to 80 millimetres. In those of 80 to 85 it is useful when moulding of the head is insufficient, when previous labors have been unsuccessfully treated by other methods, and when forceps fail. In pelves below 70 and above 85 millimetres it may be employed in cases with an abnormal size of fetus, irregularities of the pelves, etc. It is best limited to multiparæ and aged primiparæ to whom the value of the fetal life is great. It should be performed only when the fetus is living and healthy. The absolute indication for Cesarean section is found in a true conjugate between 60 and 70 millimetres in clinics, although in private practice the danger of the operation may make embryotomy preferable. Below 60 millimetres the difficulty of performing embryotomy may overshadow the disadvantages of Cesarean section, and below 50 millimetres the latter operation alone is possible. The relative indication for Cesarean section is a diameter of 70 to 80 millimetres. The Porro operation should be reserved for cases where there is a clear indication for amputation of the uterus. Of embryotomy, *Pestalozza* holds that when the life of the child is threatened from natural causes or unsuccessful attempts at delivery, it should be treated as though already dead. If the pelvis is not below 70 millimetres, an attempt with forceps or version while in the Walcher position should be made.

Leopold states that (a) before term, if a multipara has had one or more difficult labors from contracted pelvis, induction of premature labor is indicated if the antero-posterior diameter is above 7 centimetres in flat pelvis, either simple or rachitic, if above $7\frac{1}{2}$ centimetres in generally contracted pelvis. The thirty-fifth week is the best time for intervention, and the membranes must be preserved unruptured. (b) At term, craniectomy is indicated when the child is dead and labor not advancing; when the child's life is threatened and the pelvic contraction is too great to allow premature labor, forceps, or version, as the risk of Cesarean section or symphyseotomy is too great for the mother when the preservation of the child is uncertain; in private practice when other methods fail and Cesarean section and symphyseotomy are deemed too dangerous. The antero-posterior diameter must exceed 6 centimetres. In pelvis from 6 to $7\frac{1}{2}$ centimetres Cesarean section is absolutely indicated; in those below 6 centimetres the indication is relative. The relative indication exists only when induced labor is impossible, version and forceps inadmissible, the child well, and the surroundings suitable for operation and subsequent treatment. When these conditions do not obtain, craniectomy on the living child is advised by Leopold. Symphyseotomy is indicated only in pelvis of $6\frac{1}{2}$ to $7\frac{1}{2}$ centimetres, and its preference to Cesarean section depends upon the individual operator.

Treub considers symphyseotomy more dangerous than Cesarean section, as antisepsis must be more rigorous. *Nijhoff* prefers Cesarean section to symphyseotomy when there is no infection, as the technique is more simple. In case of infection craniectomy is indicated. If the diameter between the promontory and lower part of the symphysis is less than 8 centimetres, he induces labor between the thirty-fourth and thirty-eighth weeks. *Stijn Parvé* has had but 4 fetal deaths in 50 induced labors, so prefers this operation to symphyseotomy, which he finds impracticable in the country. *Heinricius* offers the same objection with regard to country practice. *Rein* considers Cesarean section and symphyseotomy equal in difficulty and results. *F. Barnes* believes that symphyseotomy will be abandoned, while Cesarean section will be more used in the future. Induced premature labor will always be useful within certain limits. Perforation is unworthy of modern obstetrics, except in the case of a dead child.

Cesarean Section.—Weber¹⁶ publishes 10 cases of Cesarean section from the University Clinic of Berne.

CASE I.—IIIpara, 36 years old, two previous confinements normal. Pregnant eight months. Normal pelvis. Large cervical fibroid blocking the pelvic outlet. Incision in the fundus 10 centimetres in length. Constriction of the cervix with an elastic ligature, which, however, fails to arrest the severe hemorrhage, largely due to the presence of the tumor. Closure of uterine wound with three rows of continuous sutures. Abdominal incision closed with silk ligatures; tore on the sixth

day after operation, after a violent attack of coughing. Reuniting of the wound was followed by uninterrupted recovery.

CASE II.—Primipara, 27 years old. Uniformly contracted pelvis, with a conjugata vera of 8 centimetres. Kyphoscoliosis of the dorsal vertebræ. Fetal head in O. P. position; cannot be forced into the pelvis. Cesarean section after the beginning of labor pains; os admits two fingers. Opening of abdomen and uterus as usual. Placenta in the line of incision. Severe bleeding is arrested after tightening the elastic ligatures placed around the cervix. Extraction of a living child. Closure of uterus with three rows of continuous catgut sutures. The abdominal wound is closed with catgut sutures uniting the different layers of tissue. Uninterrupted recovery. Patient leaves her bed the sixteenth day after the operation.

CASE III.—Primipara, 23 years old. Flat, rachitic pelvis. Conjugata vera $6\frac{1}{2}$ to 7 centimetres. Cesarean section. Active labor pains. Technique of operation same as previous case. Living child; uninterrupted recovery.

CASE IV.—IVpara, 32 years old. First two labors terminated prematurely; third, Cesarean section. Uniformly contracted pseudo-malacosteon pelvis. Scoliosis lumbalis. Small stature. Large abdominal hernia in the old scar. Opening of abdomen and uterus as before. Uterine scar almost imperceptible. Extraction of a living child. Closure of uterus by four rows of continuous catgut sutures. Recovery uninterrupted.

CASE V.—Primipara, 41 years old. Uniformly contracted pelvis. Conjugata vera $8\frac{1}{2}$ centimetres. Cesarean section after beginning of labor pains. Technique same as before. Recovery.

CASE VI.—Primipara, 40 years old. Uniformly contracted, flat, rachitic pelvis with a conjugata vera of 8 centimetres. Cesarean section after beginning of labor pains and partial dilatation of the cervix. Technique as before. Recovery.

CASE VII.—IIpara, 27 years old. Uniformly contracted pelvis with a conjugata vera of 8.5 centimetres. Cesarean section after spontaneous delivery was found to be impossible. Opening of abdomen and uterus as usual. Placenta in line of incision. Delivery of a living child, which died on the second day. Atonic condition of uterus. Administration of ergot and intrauterine irrigation. Closure of uterine wound with three rows of continuous catgut sutures. One-half hour after operation severe postpartum hemorrhage. Intrauterine and vaginal tampon. Hemorrhage ceased, to reappear the second day, but arrested with ergotin. Severe attacks of vomiting opened abdominal wound and caused a prolapse of the intestines. Secondary sutures. After this uninterrupted recovery.

CASE VIII.—Primipara, 36 years old. Uniformly contracted rachitic pelvis. Conjugata vera 9 centimetres. Scoliosis of dorsal and lumbar vertebræ. Cesarean section after beginning of labor. Os partly dilated. Technique same as before. Delivery of a living child. Careful closure of the uterine and

abdominal wounds with continuous sutures. Seven days later abdomen had to be reopened on account of acute intestinal obstruction, and it was found that two coils of intestines were entirely constricted through adhesions formed between the intestinal and uterine peritoneum. The intestines became gangrenous in three places; these parts were excised and carefully united. The next day, however, the patient died with symptoms of shock. Postmortem showed absence of septic peritonitis.

CASE IX.—Primipara, 22 years old. Uniformly contracted pelvis. Conjugata vera $9\frac{1}{2}$ centimetres. Traces of osteomalacia. Cesarean section. Technique as before; recovery.

CASE X.—Primipara, 25 years old. Flat, rachitic pelvis. Conjugata vera 9.5 centimetres. Albuminuria. Several eclamptic attacks, accompanied by severe vomiting. Cesarean section. Delivery of a living child. Eclamptic attacks ceased after emptying of the uterus. Uninterrupted recovery.

W. S. Thorne²⁷ reports 4 cases of this variety. In the first case the mother succumbed the second day to the combined results of hemorrhage and shock; the child, which weighed seven pounds, survived. In the second case both mother and child survived. In the third case a dead child was extracted and the mother died on the fourth day of septicemia. The last case resulted in the survival of both mother and child.

J. P. Walker²⁸ reports a successful case of Cesarean section.

F. W. Joshua²⁹ cites a case of Cesarean section performed in a cottage under the most adverse circumstances. The child was delivered dead. The mother survived.

Kallmorgen⁴⁸ reports another case of Cesarean section which became necessary on account of a preceding vaginal fixation. A IIpara, 34 years old, had been operated upon three years ago. When first seen the uterus had rotated around its transverse axis. Child in transverse presentation. Posterior uterine wall and lips of the cervix much distended, while the anterior lip remained unchanged. Uterus threatened to rupture, therefore Cesarean section with opening of the posterior wall. Uneventful recovery; living child.

Symphiseotomy.—G. Fieux²¹ writes that he has obtained favorable results from simple suture of the symphysis after symphiseotomy, without the employment of any apparatus for fixation. In the case reported the patient was able, without inconvenience, to move the hips and separate the legs while receiving douches on the day after the operation.

Dilatation of Bandl's Ring.—A case is reported by F. Com-mandeur¹⁷ as illustrating the inefficiency of the balloon of Champetier de Ribes in dilating the cervix in cases of retraction of Bandl's ring. He holds that the balloon causes an increased intrauterine tension, which acts upon the entire uterine muscle, increasing the retraction of Bandl's ring as well as stimulating the remaining uterine tissue. He advocates digital dilatation in such cases.

Precocious Menstruation.—E. Périer¹⁹ mentions a child

which began to menstruate regularly at 9 months of age. When seen three months after menstruation commenced the breasts were well formed, nipples protruding, pubes covered with hair, and labia majora and minora well developed.

Myxoma of the Placenta.—Chambrelet and Fieuz²¹ report a case of tumor of the placenta with hydramnion. The tumor interfered with delivery of the shoulders and body. Microscopic examination showed it to be a myxoma.

Eclampsia.—P. C. T. Van der Hoeven¹⁷ defends the theory that eclampsia is due to a toxemia caused by the accumulation in the circulation of the excretory products of the mother and those of the fetus, conveyed directly through the placenta or through the liquor amnii, into which the products of renal secretion of the fetus are discharged.

At a recent meeting of the Edinburgh Obstetrical Society, Jardine stated that (hemorrhage and rupture of the uterus excepted) eclampsia was responsible for most obstetrical accidents. The blood undoubtedly contains the poison, which acts upon the liver, kidneys, and other organs. This poison Nature attempts to remove through the kidneys, intestinal canal, and skin. Copious subcutaneous infusions of saline solution are best suited to produce diuresis. Jardine advises to add to each three parts of sodium chloride one part of carbonate of potash. He never observed bad effects, even when the proportion of potash was increased to three parts. The lax abdominal walls (after parturition) or a point below the breasts are the best places to make the injections. He was able to inject 500 cubic centimetres within the short period of four minutes; this was completely absorbed within fifteen to twenty minutes. Injections of morphine are not favored. The author prefers chloral, bromides, and veratrum viride. Success can only be expected if the treatment is begun early.

Bayer⁴⁹ reports 50 cases of eclampsia which occurred during the last five years in the Cologne Maternity Hospital. The mortality amounted to 24 percent. Examination of the blood frequently showed the presence of bacteria. Bacteria, however, are not considered an etiological factor, and the disease is ascribed to an autoinfection peculiar to pregnancy. Doses of morphine were often administered, generally without beneficial results. The administration of chloral is advised; chloroform and pilocarpine are considered dangerous. Venesection and diaphoresis are highly recommended. Speedy termination of pregnancy and labor is advisable, also rupture of the membranes. The favorable results obtained from forcible delivery are probably due to the accompanying loss of blood. The author, however, does not favor radical treatment, and also objects to Cesarean section, except when the mother is moribund and this operation affords the only chance of saving the child's life.

Cerebro-spinal Meningitis simulating Eclampsia.—A Ipara,⁴⁶ 34 years old, was sent to the hospital with the diagnosis of eclampsia. Preceding pregnancy normal. For a few days, slight malaise followed by convulsive attacks and coma.

Temperature normal. Albuminuria with casts, no pain. Os closed. No herpes or rigidity of neck. The next few days the temperature rose to 104°, high tension pulse. Venesection was performed without result. Sectio Cesarea; living child; mother died five hours after the operation. Postmortem showed meningitis, with purulent exudation containing numerous extra- and intracellular diplococci.

Abdominal Hysteropexy and Pregnancy.—M. Villeneuve²² holds that the anterior portion of the uterus cannot develop normally during pregnancy when the organ has been attached to the abdominal wall by any method. During pregnancy there may be pain, due to traction upon adhesions; exaggerated anteversion causing thinning of the posterior wall, displacement of the cervix, or sacculation of the uterus; abortion or premature labor; abnormal insertion of the placenta; and faulty presentations. During labor there may be irregular contractions, inertia, or rupture of the uterus. The writer quotes 134 cases with 5 maternal and 8 fetal deaths, and complications of varying severity in 67 cases. Observations tending to show the occurrence of normal pregnancy and labor after the operation are valueless unless it is proved that firm adhesions are present after labor between the uterus and abdominal wall. The operation is not strongly advised except when certain sterility exists.

Neoplasms interfering with Pregnancy.—E. E. Tull²⁴ cites several cases of this variety, the histories of which are given briefly as follows. The first case was one of pyosalpinx complicating pregnancy. The patient died twenty-four hours after beginning labor. At autopsy the uterus was found the size of full-term and lying on the right side. There were evidences of a low form of septic peritonitis. Appendages of left side were normal. On the right side the tube was as large as one's wrist, showing an old pyosalpinx. There was also an ovarian abscess which had emptied. The uterus was opened and the membranes and placenta found normal. On being cut the uterine wall exuded pus. Tull interpreted this as an old pyosalpinx which was ruptured by the growth of the uterus. The poison had first started up uterine contraction and later paralyzed the centres. The second case was one of the same variety, the pyosalpinx being discovered early in pregnancy, but the patient would not allow an operation. She went on to term and was delivered without difficulty. She developed sepsis twenty-four hours after labor; this continued for two weeks, when she was operated upon and the uterus and appendages removed. The patient died shortly after the operation. The third case was one of an ovarian tumor removed by Dr. Coe. The tumor was very adherent to the pelvis behind a uterus six months pregnant. At time of removal the tumor and broad ligament were very much strangulated. The patient made an uninterrupted recovery without any interference with pregnancy. Tull reports the case of a woman who had both ovaries removed without interfering with her pregnancy. He also reports two other

cases in which fibroids were removed from the uterus without interfering with the pregnancy.

Schroeter² describes a case of uterine fibroid obstructing the pelvic inlet and preventing the head from entering into the pelvis. A primipara, 36 years old, came under observation after being in labor nearly six days. The child was dead, lying almost entirely within the lower uterine segment. A large tumor, which could not be pushed aside, obstructed the inlet. Abdominal section was performed and a large fibroid, about the size of a man's head, was found to be attached to the posterior wall of the uterus and adherent to the walls of the pelvis. After dividing the adhesions the tumor could be pushed upward, whereupon the head entered the pelvis. Perforation and extraction of the fetus could now be accomplished without great difficulty. The patient's recovery was uninterrupted. The author maintains that removal of tumor and uterus could not have been done without great risk; and as these tumors have a tendency to diminish in size during the puerperium, as also observed in this case, the course adopted was certainly correct.

A. J. H. Montague and C. B. Moss Blundell³⁵ report a case of labor complicated by fibroids of the uterus. High forceps were applied and a still-born child was extracted. A severe hemorrhage occurred soon after the birth of the child, and ergotin was given; but this failed to stop the hemorrhage, and five pints of normal saline solution were injected into the cephalic vein, with the result that the patient improved rapidly and the hemorrhage stopped.

Uterine Fibroid and Pregnancy.—Delassus²⁰ describes a total hysterectomy for fibroid of the uterus which occupied nearly the entire abdomen, while a fluctuating portion at one side was supposed to be a part which had become cystic. After removal the fibroid uterus was found to contain in its posterior portion a fetus of eight and one-quarter months, which had been concealed by the tumor. By the use of an incubator the child was saved. None of the ordinary signs of pregnancy had been present.

Management of Pregnancy complicated by Abdominal Tumors.—R. B. Hall³⁶ advises operation for the removal of ovarian cysts in all cases where the tumor is small and fixed in the pelvis below the uterus; in all cases where there are any complications in the tumor itself. He would hesitate to operate during pregnancy for an ovarian tumor of moderate size that was above the uterus and where the tumor itself was too large to occupy the pelvis. In fibroids of the uterus he advises operation in all cases where the tumor occupies the lower segment of the uterus and is in such a position that it would interfere with the delivery.

The question of what operation should be done should be left to each individual operator to use his best judgment at the time of operation. If the patient has passed the fifth or sixth month the question of saving the child must be discussed. The ques-

tion of enucleation of fibroid tumors and saving the uterus is favorably discussed by many operators.

Prolonged Pregnancy.—M. Bolton³⁶ reports a case of pregnancy which lasted nearly two years. It terminated in the death of the patient. Upon opening the abdomen a very offensive mass was found, consisting of the denuded skeleton, hair, and pus, but no trace of any soft parts. The uterus had ruptured in the lower posterior portion.

Bicephalic Fetus.—W. C. F. Smith³⁵ describes a fetus with two separate and distinct heads and necks, fusing at the level of the shoulders into one trunk, which was marked by having two spines, lying some little distance from each other. The most remarkable feature disclosed by examination of the abdominal cavity was an extensive reduplication of the alimentary canal.

Rare Obstetric Accident.—H. Mallins³⁵ cites a case of labor where forceps was applied to the head, but would not lock. An attempt was made to withdraw it, the upper blade refusing to come away. The labor was left to Nature, and as the labor progressed it was found that the arm of the child had passed through the fenestra of the blade.

Paralysis in the Distribution of the Peroneal Nerve.—C. J. Aldrich³⁷ reports three cases of paralysis of the peroneal nerve following labor. In the first case the labor was prolonged and followed by right peroneal paralysis and neuritis, with extension to the other side. She slowly recovered from the neuritis, but there was persistence of some of the atrophy and paralysis. In the second case the labor was prolonged, severe, and terminated by forceps. There was right peroneal paralysis, anesthesia, paresthesia, and neuritis. She recovered from the neuritis and sensory disturbances, but there was a persistence of the paralysis and atrophy. In the last case the labor was instrumental and prolonged. There was severe left peroneal neuritis with paralysis and atrophy, also a limited loss of tactile sensation. She made a slow recovery, with weakness and atrophy of the anterior tibiae.

Atonia Uteri.—Schmit¹¹ reports an interesting and rather unusual case of postpartum hemorrhage. All known methods failed to arrest the bleeding, and finally the uterus was removed, too late, however, because the patient succumbed from the preceding loss of blood.

A primipara, 36 years old, entered the clinic, stating that she was beyond the supposed end of pregnancy. In January she observed that she grew larger, and this continued until June, when the size of the abdomen was about that of full term. Since then it gradually became smaller until October when she entered the clinic. The patient complains of severe pains, vomiting, and general prostration. Never felt life and has a sensation as if the abdomen contained a foreign body. Uterus corresponds in size to the seventh month. Cervix closed; heart sounds absent; fetal parts cannot be felt; urine normal, contains no acetone. The diagnosis was that the uterus

contained a macerated fetus, and in view of the patient's general condition the induction of labor was thought to be advisable. Introduction of an elastic bougie eighteen hours later, strong pains, and expulsion of a macerated fetus. Uterus well contracted. In spite of this, continuous oozing of blood. Massage, administration of ergot did not check the bleeding, therefore intrauterine and vaginal tamponade. Within a short time the blood had saturated the tampon, and this was replaced by firm packing; bleeding, however, continued. As the patient's condition grew more and more alarming and saline infusion and other stimulants were not effective, it was concluded to remove the uterus. The operation was performed rapidly and without any loss of blood. The patient did not revive, and died three-quarters of an hour after operation. Postmortem examination showed that all the internal organs, even the uterus, were perfectly normal, but extremely exsanguinated. Microscopical examinations proved nothing abnormal so far as concerned the uterine structures proper, but the vessels at the placental site had undergone hyaline degeneration, and the larger veins and sinuses contained old thrombi surrounded by newly formed blood vessels. The atheromatous condition prevented a retraction and contraction of the blood vessels, and fully explains the uncontrollable bleeding in spite of the firm contraction of the uterus.

Inversio Uteri post Partum.—Savor¹² describes a case of inversion of the uterus in a primipara who arrived at the clinic in an unconscious and almost dying condition. The patient had a rapid and normal confinement. The attending midwife attempted to deliver the placenta by traction upon the cord. The placenta did not come away, but the whole uterus became inverted and appeared outside the vulva. The replacing of the organ was at first quite difficult, but after a small portion had been pushed beyond the internal os the rest followed easily. A firm intrauterine tampon arrested the bleeding, and the patient's recovery was uninterrupted.

Fracture of the Symphysis.—Jellinghaus⁷ observed the following interesting case: A primipara, 31 years old, with a history of rheumatism, presented herself with a transverse presentation which necessitated version and extraction, only accomplished with considerable difficulty. Immediately afterward the patient complained of a severe pain in the pubis and inability to move the lower extremities. Examination showed a fracture of the symphysis and a vaginal tear about 5 to 6 centimetres in length. The latter wound was sutured and the symphysis immobilized with strips of adhesive plaster. Complete union and recovery of locomotion. Jellinghaus believes that the fracture could not have resulted from the force exerted during extraction, if the joint had not been in a pathological condition due to preceding rheumatism. This is of considerable forensic importance.

Abortion.—Charles⁸ observed a unique case of abortion in the Maternity Hospital of Lüttich. A primipara, 22 years old,

about six months pregnant, stated that for some time she had ceased to grow larger, and abdominal palpation revealed a uterus corresponding in size to about the fourth month. Soon after this the woman aborted. A complete ovum, with membranes intact and about 8 centimetres in length, was expelled. The fetal sac was absolutely empty and contained not even a remnant of fetal structure.

Craniotomy.—Zangenmeister⁴ discusses the question whether perforation should be followed by immediate extraction, and concludes that it is advisable to defer this and permit uterine contraction to empty the uterus. The liability to be infected is not greater and injuries to the soft parts are less likely to occur. [Although there are a few authorities who agree with the author's conclusions, most obstetricians are opposed to this. The retention of a dead or putrefied body within the uterus increases the danger of infection, and it is certainly desirable to remove the dead fetus as speedily as possible, provided, however, this can be done without extensive injuries to the mother. The objection raised that a rapid emptying of the uterus predisposes to postmortem hemorrhage holds good in every forceps operation, yet this accident rarely occurs if the operation is performed judiciously.]

Hyperemesis Gravidarum.—Dirmoser⁵ believes that auto-infection from the intestinal tract is the usual cause of hyperemesis and that the etiological importance of hysteria is largely overestimated. He refers to the similarity of postmortem changes in hyperemesis and acute infection. Urinary analysis shows an increase of indol, skatol, and other products of retrograde metabolism, also albumin, acetone, and peptone. Organic structural elements are found in the urine, indicating a nephritis. There exists an individual predisposition, probably owing to the abnormal condition of the intestinal canal. The best treatment for this obstinate and often serious complication of the pregnant state would be intestinal antisepsis, and the author states that the results obtained from such treatment will be published at a later date.

Rupture of the Uterus.—M. Cameron²⁵ cites the case of a woman who had labor pains come on at full term; these pains were very severe. There was a profuse watery discharge. The second day the external os had dilated slightly and there was a fairly bloody discharge. She remained in this condition for about two weeks, when she was seized with acute pain in her left side which lasted for two days. Nine weeks later the cervix was dilated and the child extracted. The placenta and cord could not be located, and the hand could be passed into the abdominal cavity. Cameron opened the abdomen and found the cord adherent to the anterior wall for about two inches. The placenta was found attached in the right iliac region; it was found to be well organized, and must have escaped with the child's body from the uterus nine weeks previously at the time of the rupture.

Puerperal Sepsis.—H. R. Spencer,²⁵ in discussing the sub-

ject of serum therapy in connection with puerperal fever, states that as usually applied it has not a scientific basis; that it has not lowered the mortality of puerperal sepsis; that it usually lowers the temperature and sometimes improves the general condition; that its use is not free from danger.

A. W. W. Lea²⁵ reports two cases. In both, bacteriological examinations were made and the infection was found to be due to streptococci. The patients were placed under chloroform and their uteri were curetted. A uterine douche was given and then the uteri were swabbed out with a 1:1000 perchloride solution to remove any shreds. Carbolic acid (50 per cent) was then applied and the uteri packed with gauze, and ergot given every four hours. In one case antistreptococcus serum was given; this case terminated fatally. He believes that antistreptococcus serum should only be given when the infection is due to the streptococcus, and that a bacterial examination should be made in every case, so that we can come to some definite conclusion as to its real value.

R. H. A. Whitelocke²⁶ tried antistreptococcic serum in two cases of puerperal septicemia, and believes the serum did good, causing sleep and profuse sweating.

Puerperal Septicemia caused by Tubercle Bacilli.—At a recent meeting of the Paris Medical Society, Doléris⁹ related two cases of septicemia, both occurring in tuberculous subjects. Characteristic cultures of tubercle bacilli were obtained from the blood of both patients, and the author believes that owing to the traumatism accompanying parturition the bacilli became mobile, thus entering the general circulation. The so-called cases of tubercular septicemia are very intense in character and rapidly fatal.

GYNECOLOGY AND ABDOMINAL SURGERY.

Surgical Treatment of Fibroids.—At the Third International Congress of Gynecology and Obstetrics, *Schauta*¹⁶ states that fibroids should be operated upon only when other treatment fails. Total vaginal hysterectomy is the most certain operation and offers most chance of success in all cases not reaching above the umbilicus. Total abdominal hysterectomy is advised for large, immovable myomata and those partially or entirely intraligamentous. This operation gives better remote results than supravaginal amputation with intraperitoneal treatment of the pedicle. Supravaginal amputation with extraperitoneal treatment of the stump is recommended only when rapidity of operation is necessary. Vaginal enucleation of submucous myomata with large bases through the dilated cervix or through the fornix after anterior or posterior colpotomy, with or without opening the peritoneum, should be reserved, as should all similar operations by the abdominal route, for special cases. These tumors are nearly always multiple, and the danger is not less than in extirpation of the uterus. Curettage is uncertain and not free from danger. Castration gives uncertain results and is dangerous, so has

been almost abandoned except in cases where supravaginal amputation is not feasible. Permanent clamps are not as advantageous as ligatures.

Doyen holds that the surgical treatment of fibroids consists in their ablation. Bilateral removal of the appendages is generally abandoned, and is indicated only as an accessory to ovariectomy when the fibroids do not cause severe symptoms. Fibroids should be removed through the vagina when this is easy, otherwise laparotomy is preferable. Myomectomy and vaginal hysterectomy should be performed by simple anterior or V-shaped hemisection of the uterus. Abdominal myomectomy is rarely performed for large pedunculated fibroids. The operation of choice for large, multiple interstitial fibroids is total abdominal hysterectomy by stripping off the peritoneum from the lower portion of the uterus and closing the opening in the pelvic peritoneum.

P. Reynier summarizes his views by stating that if the fibroid uterus is not larger than a fetal head, is not greatly deformed laterally or posteriorly, the cervix not effaced, and the vulvo-vaginal canal dilatable, vaginal hysterectomy is preferable. If the uterus is larger, abdominal hysterectomy should be chosen and the method varied to suit the case.

Delagénère presses the claims of ligation of the uterine arteries through the vagina, which has given him excellent results in 5 cases. He advises it for small interstitial fibroids, multiple fibroids which should be enucleated at the same time, and in cases in which hemorrhage is the chief symptom and more radical treatment is refused.

Sinclair thinks hysterectomy a serious operation and one not to be performed without good reason, while enucleation has advantages.

Engström has performed 180 enucleations by laparotomy with 8 deaths, 2 of which were not attributable to the operation.

Alexander holds that if only one fibroid causes symptoms it alone should be removed.

Gordon advocates hysterectomy with conservation of one or both ovaries. He considers myomectomy a bad operation.

Treub prefers supravaginal amputation and reserves hysterectomy for exceptional cases. He is getting to favor abdominal myomectomy more strongly.

Heinricius has performed 65 myomectomies with 2 deaths from infection, or 3.07 per cent.

A. Giles says that operation is not indicated unless fibroids cause symptoms. He thinks that myomectomy by the vaginal route should be restricted to the removal of polypi and submucous fibroids, and abdominal myomectomy to the removal of pedunculated subperitoneal growths. Supravaginal amputation is the operation most frequently called for.

C. Jacobs holds that radical treatment is required except for very small fibroids not progressing. He advocates total hysterectomy, using the vaginal route for only such tumors as do not reach above the superior strait.

La Torre urges palliative treatment and operation only when severe symptoms are feared, as he has found sarcomatous degeneration in but 2 per cent of the cases and carcinomatous in a still smaller proportion.

Galvani also advises conservative treatment. When operation is necessary he employs the vaginal route when possible, as being less serious than the abdominal.

Jayle calls attention chiefly to the advisability of saving an ovary or a portion of one in hysterectomies.

Tournay advises division of the vaginal insertion of the uterus through the vagina as the first step of a hysterectomy which is completed through the abdomen.

Pestalozza believes in early operation in young women, before the onset of severe symptoms which are likely to occur. On the other hand, many cases which have nearly reached the menopause without growth or symptoms may be left untouched.

Woskresensky considers fibroids as dangerous tumors, requiring removal by operation. This should be done as early as possible, without waiting for the patient to become feeble. The entire uterus should be removed in cases of fibroids of the body of that organ, but the ovaries should always be left unless their ablation is especially indicated. Castration alone is of no value for fibroids. If operation is refused, tonic, dietetic, and analgesic treatment is advised. All palliative treatment is condemned. Pregnancy is not a contraindication to hysterectomy for fibroids. A uterine pedicle should never be left, as recurrences of the fibroma or cancerous degeneration may occur in this portion of the cervix.

Jessett advises simple ligation and division of the pedicle in cases where the fibroid is attached by such a structure of small size; if subserous and with a broad attachment, the growth should be enucleated through an incision in the peritoneum. For other parietal myomata total hysterectomy is advised. Submucous myomata or polypi should be enucleated through the vagina after dilatation of the cervix. If malignant degeneration has occurred, total hysterectomy by the abdominal or combined route is indicated. Vaginal hysterectomy can be performed only if the uterus is small and easily drawn down.

Intestinal Obstruction due to Fibroids.—Two cases of intestinal obstruction, after hysterectomy in one instance and subperitoneal enucleation in the other, for uterine fibroids, are reported by Goullhoud.¹⁶ The obstruction was found in both cases to be due to kinking of the sigmoid by traction of the peritoneum, the relations of which had been altered by removal of the tumors.

Shortening of the Broad and Round Ligaments.—In a paper before the Third International Congress of Gynecology and Obstetrics, *H. Delagénère*¹⁶ speaks of these operations as auxiliaries to others. If the retroversion is reducible he advises curettage, amputation of the cervix, ligation of the uterine arteries if the uterus is large or contains fibromata, perineor-

rhaphy or colpoperineorrhaphy, and Alexander's operation. If the retroversion is made irreducible by adhesions, these should be broken up, lesions of the appendages treated, and the ligaments shortened intraperitoneally. For simple retrodeviation he shortens the round ligaments; when prolapse is present, the broad ligaments. He reports 15 operations in which Alexander's operation was combined with the others mentioned, 9 in which he shortened the round ligaments, and 9 in which he did the same with the broad ligaments. The immediate results were favorable in all the 33 cases, and the remote results as far as ascertained.

Jacobs advocates passing sutures through the broad ligament just below the round ligament when shortening the latter. When the sutures have been passed through the round ligament itself, he has observed a necrosis of a portion of this structure, due to interference with the circulation in its artery.

Goldspohn considers the round ligaments alone suitable for shortening, and favors doing this in the inguinal canal. He also advises opening the peritoneum and breaking up adhesions of the uterus and appendages.

Vineberg operates through an anterior vaginal incision, breaking up adhesions and folding the round ligaments upon themselves after drawing the uterus forward through the wound.

Heinricius believes that the symptoms of uterine retrodisplacements are due chiefly to complications, and that they are best relieved by treating the latter.

Treatment of Spontaneous and Post-operative Gynecological Fistulæ.—Doyen¹⁶ summarizes a paper upon this subject by stating that the methods which should be employed are the same as those used during operations for the immediate repair of wounds of the intestine, bladder, and ureters.

Treatment of Vaginal Cystocele.—Laroyenne¹⁶ operates for this condition by suturing the anterior surface of the uterus to the anterior abdominal wall, and then the postero-superior wall of the bladder to the anterior surface of the uterus, this step being aided by a finger introduced through the dilated urethra into the bladder. The operation is completed by fastening the bladder to the anterior abdominal wall by two sutures placed below those of the hysteropexy and those uniting bladder and uterus.

Intrauterine Implantation of the Ovary.—Palmer Dudley¹⁶ reports a case of double pyosalpinx in a woman 21 years of age, who had had one miscarriage but no children. After laparotomy he removed the double pyosalpinx, leaving in place the right ovary. The fundus of the uterus was next incised and a place prepared on its inner surface for the reception of the ovary, which was fastened there by deep and superficial sutures after being excised and washed in salt solution. The ovary was retained and the next two menstruations occurred at the normal times.

Periodical Intermenstrual Pains.—Brodier¹⁶ states that

these pains occur at about the age of 30 in women who are hyperæsthetic, in good general health, and with no lesions or merely slight changes in the appendages. He has observed a woman who, from 26 to 36 years of age, had these periodical crises, which disappeared entirely during five months of a pregnancy which was terminated by a miscarriage. The pains were diminished by the horizontal position or by replacement of the anteverted uterus, and were accompanied by frequent desire to urinate. From these facts he deduces the following explanation. The chief factor is an impressionability of the nervous system. The second is the weight of the uterus pressing upon the bladder. During pregnancy the uterus enlarges and rises upward from the latter organ. During menstruation the congested uterus straightens and rises from the bladder; afterward it gradually descends and again presses upon it after six or eight days, causing the pains. The bladder gradually becomes accustomed to the pressure of the uterus, and the pains cease until after the next menstruation.

Antisepsis in Gynecology.—In discussing this subject before the Third International Congress of Gynecology and Obstetrics, *Doyen*¹⁶ gives the following precautions: 1. Disinfection of skin: wash with hot water and soap, then with 1:1000 bichloride, then with alcohol and ether. Shave when necessary. 2. Compresses and cotton sterilized for forty-five minutes in a steam sterilizer at 266° F. 3. Salt solution for irrigation is sterilized at the same temperature. 4. Instruments sterilized by dry heat at 320° F. or by boiling in two and a half per cent carbolic. 5. Antiseptic solutions—1:1000 bichloride, carbolic acid with an equal amount of alcohol, saturated boric acid solution—are made with boiling water. 6. Antiseptic powder—the writer used glutol. 7. Ligatures and sutures—silk and floss sterilized by steam at 266° F. and plunged into alcohol at 194°. 8. Absorbable sutures. Catgut cannot be certainly sterilized. 9. Drainage is necessary when there is a discharge of any kind. 10. Dressings: over the sutures a sterile compress and gauze.

The technique described by *C. G. Cumston* included: 1. Preparation of hands of operator and assistants by brushing with soap and hot water frequently renewed, washing in ether, brushing in ninety per cent alcohol, then in 1:2000 bichloride, rinsing in sterile water. The nails are kept cut very short. Rubber gloves are discarded except for pus cases and rectal and vaginal examinations. A cap is worn over the hair during operations, and the beard similarly covered. 2. Preparation of the patient: All patients are prepared for vaginal and abdominal operations. Shave, clean vagina with soap in ether, irrigate with hot sterile water and then 1:200 bichloride. The abdomen is shaved, brushed with soap and ether, ether, ninety per cent alcohol, and finally dressed with 1:3000 bichloride or 1:300 formaldehyde. Alcohol and ether are not used in the vagina, because too irritating.

The day before operation the bowels are moved by calomel

in divided doses, followed by a Seidlitz powder. For ligating large vessels fine silk is employed, never braided silk, which seems liable to slip. Formalized catgut is used for sutures of the broad ligament and vagina and abdominal wall. This is prepared by soaking catgut for forty-eight hours in four per cent formaldehyde, washing it in running water for eight hours, and, just before the operation, placing it in boiling water for fifteen minutes and then in ninety per cent alcohol. For Emmet's operation or Hegar's amputation he employs chromicized catgut sterilized for one hour on two consecutive days by dry heat at 266° F.

For other vaginal operations formalized catgut is used, and vaginal irrigation with 1:200 formaldehyde keeps the vagina aseptic and preserves the sutures. For skin and subcutaneous cellular tissue an intradermal suture of formalized catgut is employed for thin subjects; for thick abdominal walls, sutures of silver wire sterilized by boiling, or of wire of aluminum and bronze sterilized by dry heat at 266° F. for one hour on two successive days. For antiseptic gauze packings Cumston uses only gauze impregnated with twenty per cent of one of the salts of bismuth, sterilized by moist heat at 212° F. without chemical alteration.

Gonorrheal Salpingitis.—J. W. Taylor³⁹ emphasizes the following points: First. That a large proportion of women suffering from gonorrheal tubes have at some time been exposed to syphilis as well as gonorrhea; that these show marked improvement after a prolonged course of mercury and iodides, and, unless an acute pyosalpinx intervenes, it is the rule for all gross physical signs of disease to slowly and permanently disappear.

Second. That many cases in which there is no history of syphilis do similarly improve and get permanently well under the same course of treatment, provided that the disease stops short of acute pyosalpinx.

Third. That acute pyosalpinx is peculiarly liable to occur in the first place on the left side of the body, and its special severity is probably due to secondary infection from the rectum; that these cases should be treated by free incision of the posterior vaginal fornix, by thorough exploration and emptying of all pus cavities from the pouch of Douglas, and by iodoform gauze. This operation is preferable to the older operation of removal of the appendages.

Fourth. That such cases of mixed infection and acute supuration treated by operative evacuation of the pus do sometimes recover and remain permanently well.

Fifth. That occlusion of the tubes and peritubal adhesions consequent on gonorrheal adhesions have no direct specific causation, and must be regarded rather as secondary mechanical results of the local peritonitis which has been caused by the salpingitis. Their absorption does not necessarily come about by the cure of the gonorrhea, and sterility may persist although the gonorrhea is eradicated.

Sixth. That in gonorrhea of the pelvis there will probably remain a residuum of intractable cases, particularly cases of complication with other diseases; that in these cases operative removal of the organs affected will still be required, and that vaginal hysterectomy whenever possible, with or without extirpation of the uterine appendages, is not only the most rational operation in theory, but is productive of the best final results.

Double Pyosalpinx.—J. Campbell³⁹ reports a case of this variety in which one of the tubes contained nineteen ounces of pus. The tumor attained such proportions without causing any notable amount of pain. There was almost an entire absence of adhesions. This was quite contrary to all his experience of pyosalpinx. The origin of the condition was obscure, there being no history of urethritis or vaginitis. There were no signs of tubercular disease. The patient had only been married ten months and had never been pregnant. At the time of operation both tubes and portions of both ovaries were removed. The patient made a good recovery.

Deciduoma Malignum.—F. W. N. Haultain³⁹ describes a case of this variety as follows: On examination the uterus felt enlarged and soft and the cervix admitted one finger. Being of the opinion that he had to deal with a subinvolution due to retained secundines, he curetted. The scrapings showed the characteristic multinuclear protoplasmic masses and large nuclear cells which occur in deciduoma malignum, and he therefore advised immediate hysterectomy. This advice was not accepted until more than a month later, when the patient returned on account of profuse hemorrhages. Vaginal hysterectomy was performed. On examination of the uterus there was found on section a small growth springing from the upper part of the anterior wall, sessile in nature. It was covered by apparently smooth, healthy mucosa, except at one spot where a blood clot protruded. Microscopically, the cellular elements were of two types: (1) large polyhedral cells which stain lightly, and whose large nuclei showed a wide intranuclear network; and (2) multinucleated, deeply stained protoplasmic masses of all varieties of shapes, whose nuclei were extremely rich in chromatin and showed no wide intranuclear network. Both varieties of elements showed marked tendencies to retraction and vacuolation. Mitotic figures were frequent. The relationship of these two varieties of cells varied greatly. Nowhere was there evidence of intracellular substance or blood vessels, although free blood was intimately mixed with the cells. Extending into the muscles, both varieties could be seen apparently following the perivascular lymph spaces.

The chorionic villi in some instances showed degeneration, but others were normal. On section of the tumor three areas were described: (1) the submucous area was necrotic, composed of fibrin and cellular elements in all stages of degeneration; (2) a cellular area or tumor proper, which was composed entirely of active proliferating cellular elements and chorionic

villi mixed with free, uncoagulated blood; while (3) we have the area of infiltration, in which were seen cells and protoplasmic masses, isolated and in groups, insinuating themselves into the blood channels and surrounding the degenerated muscular elements.

In discussing the origin of this growth, Haultain agrees with Marchand, who maintains that both layers of the villus are fetal structures and designates the tumor as a chorionic epithelioma. He bases his opinion on the following grounds: 1. The absence of syncytium everywhere except in close relation to the villi. 2. Its absence in the intervillous portion of the chorion. 3. The absence of general syncytial changes in the glandular epithelium.

Epithelioma of the Vulva.—J. B. Hall¹¹ describes a case of warty growth of the vulva, supposedly epithelioma. The growth first appeared immediately above the clitoris; as it increased in size it was removed; six months later it reappeared and was removed again, as twice afterward at intervals of five and nine months later. The growth reappeared the fifth time and was removed by the following operation: The knife was entered over the symphysis and an incision was carried down each of the labia majora a good quarter of an inch from their margins. The incision went down to the periosteum as far as the bone extended, and reached a good inch below the level of the meatus urinarius. The lower extremities of these incisions were then joined by an angular incision carried across the genital cleft and rising in the mid-line above the meatus. The whole area included in these incisions was dissected out. The clitoris was removed; the cut edges were then united; the whole genital cleft, except the meatus urinarius and vaginal orifice, was obliterated. The disease has not returned after two years.

Palliative Treatment of Cancer of the Uterus.—Jouin¹⁶ draws down the uterus and cures the diseased portions. These are then touched with the thermocautery; the vaginal walls isolated by a thick layer of vaseline; the area curetted is impregnated with ninety per cent alcohol, which is lighted and allowed to burn for from one-half to one and a half minutes. A dressing is then applied. The writer claims 10 cases with good results and no accident.

Herff⁶ believes that even in so-called cases of inoperable cancer extirpation of the uterus is the best palliative treatment. Cauterizing is used in all cases where hysterectomy is impracticable. The bleeding and sloughing is best relieved through excochleation and subsequent cauterization. Good results may be obtained by simple removal of the sloughing masses with a sharp spoon. This should be followed by the application of concentrated solutions of chloride of zinc every three or four days. The after-treatment is important; frequent applications of tincture of iodine are advised. Applications of various powders, especially of clay, are highly recommended to arrest the bleeding; Herff found clay very serviceable. Tincture of chloride of iron should be avoided. The best remedy, however, is

acetylene, which possesses both astringent and cauterizing properties. The cavity is disinfected and thoroughly dried, after which small pieces of calcium carbide are packed into the wound and kept in position by a cotton tampon. The dressing is renewed the second or third day. This method of treatment renders the growth firm and hard and greatly lessens the liability of hemorrhage. In many cases the pain is also ameliorated, especially if caused by nerve pressure.

Boisseau du Rocher¹⁶ states that an absolute diagnosis of cancer of the uterus may be made if all three of the following conditions coexist: persistent hemorrhage after treatment by oxychloride of silver obtained by electrolysis, imperfect formation of the oxychloride and incomplete adhesion of the silver to the mucosa, and inertia of the uterine muscle, which does not respond to electrical stimulation.

The Removal of the Ovaries in Malignant Disease.—E. E. Montgomery,⁴² after a careful consideration of the beneficial influence on the subsequent progress of malignant disease of removal of the ovaries, comes to the conclusion that the apparent relief is afforded through the vasomotor nervous system; that further experience is required to demonstrate, not curability, but sufficient palliation and delay in the progress of the disease to compensate the patient for the discomfort of the additional operation: and that the operation will only be of service when done during the reproductive activity.

Inversion of the Uterus.—W. Walton Don³⁹ reports a case of complete inversion of the uterus occurring after labor. He was called in to see the case five hours after the prolapse began, and found the patient markedly prostrated. On the posterior and upper surface of the inverted uterus he found a piece of membrane four inches square; this was removed. Pressure was now exerted on the fundus by two fingers, and the uterus gradually resumed its natural state. The patient made a good recovery and has since borne a living child. At her last confinement forceps were applied on account of uterine inertia.

A New Method for the Treatment of Retroflexion and Prolapse.—Schücking⁴⁵ describes a new operation for the treatment of retroflexion which does not affect the normal position and mobility of the uterus. The operation consists in a transverse incision in the anterior fornix and dissection of the mucous membrane up to the junction of cervix and vagina. The wound is united vertically, and when completed represents a cross. Should the posterior fornix be much distended, a vertical incision is also made posteriorly and united transversely. In 7 cases thus treated satisfactory results were obtained in 5, 1 slightly improved, 1 not improved. The simple operation is also advised in cases of prolapse with cystocele and rectocele. Good results were obtained.

Appendicitis.—W. D. Sumpter⁴⁰ reports a case of appendicitis complicated with hematoma of the ovary. He removed the appendix and the ovary. The uterus, which was retroverted, was brought forward and subjected to hysteropexy by Kelly's method. The patient made a good recovery.

Multiple Ulcers of the Vulva.—A. J. Lartigan⁴¹ reports two cases of ulcers of the vulva and vagina occurring in women with typhoid. The ulcers were round or oval, sharply defined, located on the cutaneous and mucous surface of the labia majora, labia minora, and just within the vaginal orifice and external to the hymen. The margins were clear cut and the bases covered with a thin layer of thick, yellow, purulent material. A culture was made in one case and a nearly pure typhoid culture obtained.

The Relation of Some Intrapelvic Conditions to the Blood State.—C. A. L. Reed⁴² has found the blood state in two cases of infantile genitalia as follows: In one case there was a very rudimentary uterus and no ovaries could be located; she had never experienced even a menstrual impulse. Her blood state was: red corpuscles, 5,000,000; white corpuscles, 9,000; hemoglobin, 95 per cent. In the other case the uterus was small, no ovaries could be palpated, and she had an imperforate hymen; her menstrual periods were accompanied with excruciating pain. Her blood state was: red, 3,200,000; white, 10,000; hemoglobin, 60 per cent. The most pronounced changes accompanying uterine displacements have been noted in cases of retrodisplacement with fixation. In such cases he has found pronounced oligemia, and in two instances marked hypohemoglobinemia. In chronic endometritis where the discharge is essentially catarrhal and free from septic contamination, the blood state is little changed. In long-standing cases with menorrhagia and metrorrhagia there is present a veritable oligemia, the normal ratio of the globular elements being preserved by a hypohemoglobinemia. In pyosalpinx there was always present a leucocytosis varying from 13,000 to 38,000. The cases where the gonococci were present showed an average high leucocytosis. In cystomata of the ovary there occurred no appreciable disturbance of the blood, except in old cases where there existed a leucocytosis. In six cases of carcinoma uteri where the disease was limited to the cervix there was a slight leucocytosis. In many cases of myomata and myofibromata in which the loss of blood was great there exists a demonstrable oligemia, often associated with a hydramic state. In one case of chronic oöphoritis with cystic degeneration of the ovaries, the blood was pale and continued to run from a needle puncture for several hours; red corpuscles, 3,400,000; white corpuscles, 10,000; hemoglobin, 65 per cent; a few microcytes were observed. In another case equal paleness and fluidity of the blood was observed, while corpuscle count showed red, 4,000,000; white, 9,000; hemoglobin, 60 per cent. In another case the red corpuscles were 3,500,000 and the white 10,000, with a pronounced oligochromemia. In convalescence from surgical operations there is a transient leucocytosis:

Atmokausis and Zestokausis in Gynecology.—Steinbuechel⁴³ relates his experience with atmokausis and zestokausis, and reports as follows: 4 cases of dysmenorrhea, 3 entirely

cured, 1 slightly improved. Endometritis with copious discharge: 15 permanent cures, 2 patients not improved, and 1 slightly relieved. In uterine bleeding atmokausis was employed in 65 cases; immediate cessation of flow in 56 cases, marked improvement 5 times, no improvement 4 times; 46 remained permanently well; in the remaining 11, relapse. Subinvolutio uteri with profuse bleeding, 6 permanent cures. Menorrhagia after abortion, 5 cases, complete cure. In puerperal fever and putrid endometritis, atmokausis was employed in 10 cases; all recovered, once followed by slight parametritis. Septic endometritis post partum, 3 cases; atmokausis did not reduce the temperature. In inoperable cancer of the cervix atmokausis proved a very valuable therapeutic measure. In hemorrhage the result of fibroid tumors, atmokausis was used; the hemorrhage ceased; the author also believes that the tumor decreased in size. Obliteration of the uterine cavity was attempted in 3 cases, but proved unsuccessful. In 4 cases of uterine gonorrhea the clinical symptoms disappeared and the patients were apparently cured. Complications observed as follows: once unintended obliteration of the uterine cavity, three times stenosis of the internal os, twice acute inflammation and swelling of the adnexa, once extensive pelvic peritonitis, and once slight parametritis; no deaths. Anesthesia was administered in 4 cases. Narcosis is permissible, but rarely required. The after-treatment consists of rest in bed and disinfecting vaginal douches. Subsequent control as to the condition of the uterine cavity. Inflammatory processes in the adnexa contraindicate atmokausis and zestokausis.

Schlutius¹¹ states that the steam must range to a temperature of 105° C. or higher. He never uses atmokausis. Only slight dilatation of the cervix is required, and anesthesia is unnecessary.

The indications and results obtained from atmokausis were discussed by Pinkus¹⁰ at the last meeting of German gynecologists at Berlin, and summed up as follows: Atmokausis consists in the action of watery vapor upon the interior of the uterus. A similar effect is obtained by means of a uterine sound heated to a high degree by steam. This is termed zestokausis.

1. Both atmokausis and zestokausis are useful therapeutic aids, and not more dangerous than other methods of intrauterine treatment, provided the technique is fully mastered and the proper indications are borne in mind. The dangers are not proportionate to the good effects.

2. The best results are obtained if performed without anesthesia, not immediately following curettement, and after dilatation and protection of the cervix; rest in bed until the scab has separated, in slight cases from two to three days. Its exact action can be determined beforehand, and every effect, from a superficial irritation to a deep destruction of the mucous membrane, may be obtained. The intensity of action depends upon the height of temperature (steam pressure) and con-

tractility of the uterus. High temperatures from 110° to 115° C. are preferable because more uniform in action. The maxim is "short duration and high temperature." This is especially advisable in young individuals. Both atmokausis and zestokausis may be substituted for curettement, if the latter operation has failed to produce desired effects.

3. It is a specific against uterine hemorrhage (menorrhagia, metrorrhagia, myomata, and climacteric), and produces good and quick results in endometritis, metritis, and subinvolution.

4. Obliteration of the uterine cavity is rarely permissible, and should not be attempted except under the most urgent indications and never as a prophylactic against cancer of the uterus.

5. If atmokausis is not followed by success the contractile elements of the uterus have disappeared.

6. Atmokausis is very valuable in inoperable cancer of the uterus, and also as a means of disinfecting the uterine cavity prior to hysterectomy.

7. In the beginning stages of puerperal sepsis good effects may be expected, but in the latter stages it is useless.

8. Submucous myomata or polypi, also malignant growths, if they can be felt or demonstrated through microscopical examinations, are not proper cases for atmokausis.

9. *Conditio sine qua non* is an absolutely healthy condition of the adnexa.

Flatow² publishes investigations as to the effect of atmokausis upon the interior of the uterus. He exposed fresh uteri to the temperature usually recommended, and the results obtained fully confirm the objections against this method. They certainly prove that the exact effect produced in a given case cannot be accurately determined beforehand. Atmokausis is not accomplished through the high temperature of steam, but through water raised to a temperature of 75° to 85° C.; in other words, the steam condenses and enters the interior of the uterus, not as steam, but in the form of hot water. Therefore atmokausis, as far as its bactericidal action is concerned, has proved a failure. The length of application is not synonymous with the effect, because this is largely influenced and altered by the size of the uterine cavity, the condition of its walls, and the character of the bleeding. Atmokausis is of advantage in interstitial endometritis, climacteric bleeding, and inoperable cancer of the cervix whenever it is desirable to destroy the uterine mucous membrane. Every form of inflammation, whether recent or old, within or adjacent to the uterus, contraindicates atmokausis. In septic abortion without previous curettement and in fibroid tumors the greatest care is cautioned. Atmokausis is not a substitute for curettement, but only an aid within a limited sphere.

Soor of the Bladder.—Frisch¹³ reports a case of a woman 64 years old who entered the clinic with marked symptoms of cystitis. Urine pale, markedly acid, specific gravity 1026,

traces of albumin, and four per cent of sugar; also contained round, white, granular structure, adherent to which were gas bubbles. These granular structures consisted of mycelia; besides these, microscopical bodies closely resembling yeast plant were present. The author suspected that these latter were soor fungi, and subsequent culture and inoculation experiments sustained the correctness of the diagnosis. The existing pneumaturia was due to the presence of colon bacilli.

Irritable Bladder.—Knorr⁶ reports 63 cases, careful cystoscopic and urinological examination demonstrating that these cases rarely depend upon a nervous hyperesthesia and that pathological changes are usually present. He found cystitis coli chronica 30 times, pericystitis 9 times, fissure of the internal sphincter 2 times, papillomata 3 times, hyperemia of the fundus 6 times, etc. Local therapy is advised, which is usually successful in curing and relieving the symptoms.

Vaginal Operations.—Based upon extensive observations and experience, Schauta³ concludes that the removal of the adnexa per vaginam is preferable to the abdominal operation. He still adheres to the use of ligatures; 344 abdominal operations had a mortality of 7.2 per cent; in 249 vaginal operations only 3.6 per cent of deaths.

Vaginal Operations in Pelvic Abscesses.—According to Landau, extirpation of the uterus and adnexa per vaginam should be performed in pelvic abscesses and extensive inflammatory changes of the adnexa. Bröse⁴⁷ has thus operated in 45 cases, of which he submits a detailed report. The operation is indicated in two varieties of cases. First, in complicated pelvic abscesses, usually of the parametrium and generally of puerperal origin; in complicated bilateral pyosalpinx and pyo-ovarium which have resisted other means of treatment. In such cases the vaginal method is decidedly useful, while the abdominal operation is objectionable, if not impossible. The second class includes all cases of extensive bilateral diseases of the adnexa. In these cases Bröse also prefers the vaginal operation for the following reasons: the permanent results are better, the purulent collections in the parametrium have a better chance to drain off, the firm vaginal scar is an excellent prophylactic against renewed gonorrheal infection, absence of abdominal scar, and better prognosis of the operation. Bröse reports 1 death due to the operation, equal to 2.1 per cent mortality; 39 cases, equal to 96.5 per cent, were permanently cured. Bröse's technique is almost identical with that of Landau: anterior colpotomy, splitting of the uterus in two, and removal of the adnexa with Thumim's compression forceps; finally, iodoform gauze tampon.

Catgut.—Mirovini¹ publishes a series of interesting experiments as to methods of the strength, sterilization, and absorption of catgut. Water impairs the strength of catgut, both at low and high temperatures. Impregnation of catgut with formalin and chromic acid increases its resistance against water. In alcohol, ether, and chloroform—in fact, in all sub-

stances with a boiling point below 100° C.—catgut may be preserved indefinitely, provided these substances do not contain water. The sterilization of catgut is very difficult. Germs are destroyed after the catgut is exposed to a temperature, either moist or dry, of 140° to 150° not less than two hours. Catgut preserved in bichloride of mercury, formalin, chromic acid, and oil of juniper will become sterilized. The resorption of catgut is not as rapid as usually supposed. Mirovini was able to demonstrate it in the tissues of a dog after a period of one hundred and twenty-five days. Aseptic catgut is more rapidly absorbed if preserved in an antiseptic medium.

Interaction between the Ovaries and the Mammary Gland.—Stanley Boyd³² does not believe the breast influences the ovary in any way. He thinks the ovary in certain pathological conditions secretes a substance which favors the growth of cancer, influencing either the invading epithelium or the resisting mesoblastic tissues.

Amand Routh³² thinks that it would be possible for ovulation to take place in a woman whose breasts had been removed. He does not know of any case where conception has taken place after the removal of both breasts in women, but conception has occurred in animals after the removal of their breasts. It has been abundantly proved that full-term gestation and lactation proceed normally after complete double ovariectomy.

He believes that lactation is due to some chemical change in the blood, which, in a normal gestation, is produced within a short time after a gravid uterus ceases to contain a living fetus, whether it be at once expelled with its placenta and membranes or remains for a time *in utero*. There is more or less sudden cessation of nutritive requirement previously needed by the fetus, and probably a corresponding sudden absorption into the maternal circulation of waste products. The biochemical change is almost certainly in the uterus and not in the ovaries. There probably is no essential interaction between the ovaries and the mammary gland.

Tumors of the Abdominal Walls.—Olshausen⁴⁷ observed 22 cases of fibromata of the abdominal walls; of these, 20 submitted to operation. All patients were in the period of sexual activity and had previously been pregnant. In many cases the tumors were first noticed during pregnancy. This probably points to pregnancy as an etiological factor. The tumors vary from a hen's egg to a man's fist. Simple fibromata predominate, but at times there are also round and spindle cells. The removal of small tumors is not difficult, and can be done without opening the peritoneum. In 7 cases the opening of the peritoneum became necessary. Olshausen also reports 2 rare tumors of the abdominal walls, one being a typical carcinoma, while in the other case the anatomical structure closely resembled a glandular ovarian cyst, and in this case the abdomen also contained an ovarian cyst.

Colonic Lavage.—Fenton B. Turck³⁶ states that when the

temperature of the water used as the lavage has reached 55°C ., there is an immediate reflex stimulation on the heart and the vasomotor centres. The number of white blood cells is increased, as is also the blood pressure. After colonic lavage at 50°C . for five minutes, there is an immediate fall in internal temperature with a corresponding rise of the skin temperature. On continuing the colonic lavage there is a gradual rise of internal temperature as determined in the stomach, and a continuation of the rise of the skin temperature. The immediate effect of high temperature in the colon is to produce a series of contractions. The contractions at first are local, but in the progress of the treatment the peristalsis of the entire colon is followed by both peri- and antiperistaltic movements of the small intestine. The movements of the stomach are also stimulated.

Water at 55°C . introduced into the colon will produce a secretion in the kidney in three minutes, while water at a lower temperature has no immediate action. The flow of blood through the liver is increased, and the cells of the gland are stimulated.

The effects on general metabolism are as follows: 1. By increasing the circulation more oxygen is supplied to the tissues and the waste products more quickly removed. 2. Through nervous impulses by the heat stimulation. 3. By directly increasing the temperature of the blood. 4. By direct heat stimulation of the cells of organs contiguous to the colon. Increased metabolism is shown by increased elimination, especially of urea, by an increased amount of food taken, and often by an increase in the weight of the patient. In all forms of pelvic congestion of the uterus and ovary the symptoms rapidly disappear by the use of colonic lavage at 55°C . Water at this heat is perfectly safe in the colon, although it is not safe in the vagina.

This lavage is an active means of combating the complex symptoms known under the term cholemia. In uremia the functional efficiency of the kidney as well as the other organs is improved. The excretion of the skin is increased by the increased circulation of the heated blood.

Treatment of Procidentia.—J. I. Parsons²² advises the use of injections of quinine solution into the broad ligament in procidentia. The injections are made under perfectly aseptic conditions. They are made on each side through the vaginal wall, care being taken that the direction of the needle is perpendicular to the base of the broad ligament. The needle should be about an inch in length and rather thicker than a hypodermatic. The solution of quinine should be 1 : 5, and about 30 to 40 millimetres should be used. The uterus should be well anteverted bimanually, and held in place by a pessary until the effusion of lymph has taken place. The pessary can be removed at the end of four or five days. If a second injection is needed an interval of at least three weeks or a month should be allowed before it is made. The patient should be kept quiet so as to let the effusion organize—that is, she should lie down

for a month or two. He tried this plan of treatment in 16 cases with very good results.

Kraurosis Vulvæ.—J. M. Baldy and H. F. Williams³⁰ describe this condition as being either unilateral or circumscribed, but usually the tissues of the labia majora, nymphæ, the area about the clitoris and urinary meatus, all become more or less involved. As the disease advances the labia minora gradually disappear, fusing with the labia majora, and the skin becomes drawn and shiny over the shrunken clitoris, which apparently retracts behind the skin and is indicated by a small depression. Underlying vessels are frequently seen through the epidermis, and cracks appear. A sensation of drawing and shrinking of the vulva is usually experienced, and the vulval orifice gradually becomes contracted until it will hardly admit the little finger. At this time the process generally stops, the subjective sensations of shrinking pass away, and the symptoms of pruritus, usually prominent at first, are no longer experienced. The shrunken condition persists and sexual intercourse is impossible.

The treatment of this condition is palliative and curative. Carbolic acid and cocaine afford temporary relief. The curative treatment consists in complete excision of the diseased tissue. They report a case of kraurosis vulvæ on which was performed an operation, removing the diseased tissue at the side of the vulva and a larger vaginal opening made.

Natural Menopause compared with Artificial Menopause.—J. B. Sutton³¹ defines the natural menopause as the cessation of menstruation in consequence of the natural atrophy of the secreting tissues of the ovary. In Great Britain it may happen at any age after 35, but the average age for its occurrence is the forty-fifth year. The menopause is not only declared by the cessation of a monthly loss of blood from the uterus, but by the peculiar cutaneous phenomenon known as "flushing," which has been defined by Campbell as "a nerve storm in which a rush of blood to the skin and a sense of heat are generally the most obtrusive manifestations." He then states that in a fully developed flush the patient at first feels hot, some portion of the skin being flushed with blood immediately afterward, or in a very short time sweating occurs; finally, while the sweat is still on, or while it is diminishing, or actually after it has disappeared, the patient feels cold or may shiver.

Although removal of the uterus from a mature woman produces amenorrhea and sterility, it does not induce a complete menopause. On the other hand, complete removal of both ovaries from a sexually mature woman is followed by amenorrhea, sterility, and in a fair proportion of cases by "flushings," which in some women occur as frequently as fifteen times an hour after an artificial menopause. As time goes on they gradually lessen in intensity and frequency, until they cease to be inconvenient and finally subside. These signs do not supervene after removal of the uterus alone, and it was the view of

avoiding the production of an artificial menopause that induced Sutton, whenever it was practicable and prudent, in performing hysterectomy to spare at least one ovary, and to remove the uterus in many grave conditions in preference to the sacrifice of both ovaries. Sutton has had sufficient opportunities of obtaining evidence in relation to this matter to be able to state positively that the loss of the uterus alone does not entail an artificial menopause. In some very striking instances in which he removed the uterus for myomata on account of profuse menorrhagia from women of 48 and upward, in whom one or both ovaries were preserved, they began to complain, from eighteen months to two years afterward, of flushing, and then passed through the usual disturbances characteristic of the normal menopause. If a woman has had her uterus removed and possesses at least one ovary, she may be regarded as nubile, if the intended husband clearly understands that she cannot bear children.

Treatment of Cystocele and Uterine Prolapse after Menopause.—T. J. Watkins²¹ advises the following operation for the above conditions. After the usual preparations the uterus should be curetted and separated from the vagina by a circular incision. The bladder should be separated from the uterus by blunt dissection and the peritoneal cavity opened in front of the uterus. The anterior wall of the uterus is grasped by bullet forceps and the organ anteverted. About two inches of the upper portion of the anterior vaginal wall is excised. The anterior vaginal wall is now sutured to the upper border of the broad ligaments lateral to the uterus, and to the fundus of the uterus, with silkworm-gut sutures. The posterior vaginal wall is incised longitudinally in the median line from the cervix downward about one inch, so as to allow the cervix to be displaced upward and backward. The wound in front of the cervix is now closed by silkworm-gut sutures inserted transversely, that is, parallel to the line of incision anterior to the cervix. The operation at this stage has lengthened the anterior vaginal wall, obliterating the cystocele, and forced the cervix upward and backward into its normal location. One silkworm-gut suture secures the cervix in the angle of the incision in the posterior vaginal wall. The sutures are to be removed at about the end of four weeks. This operation is especially adapted to those cases which occur after menopause as the result of senile atrophy.

End-to-end Suture of the Ureter.—D. A. Allen and C. E. Briggs²⁶ report a successful end-to-end suture after the division of one of the ureters of a horseshoe kidney.

Observations on the Methods of Cure of Inguinal Hernia.—J. C. Stinson,²³ after comparing the methods used by various surgeons, comes to the following conclusions: 1. That with careful antiseptic and aseptic precautions, provided the operator is skilful and familiar with the special anatomic and pathologic conditions associated, an operation for the cure of hernia has a mortality at or about *nil*, or less than that associated with the condition previous to the operation. 2. That

sterilized chromicized tendon, or in its absence carefully chromicized catgut, is the most suitable material for buried sutures. 3. That, in closing, the internal ring should be closed by sutures, placing the spermatic cord next to the pubic bone; the internal ring should be reinforced and canal closed by sutures by uniting the internal oblique and transversalis muscles and their conjoined tendon to Poupart's ligament. The cut edges of the external oblique aponeurosis and the pillars of the external ring should be sutured so that the pillars snugly embrace the cord. 4. That the majority of cases are cured by operation. 5. That this operation restores the structures firmly and durably to their normal position, relations, and uses; has all the advantages of the other methods of operation, but none of their disadvantages; and fulfils the indications for a radical cure.

Surgical Treatment of Gastric Ulcers.—E. W. Andrews²³ and D. N. Eisendrath conclude that only operative interference can save the lives of a part of the patients affected with bleeding ulcers of the stomach, viz., those not improved by internal medicine. Surgical intervention is to be recommended, first, in small, repeated hemorrhages; secondly, in severe ones occurring more than once, especially if more than 500 cubic centimetres are lost at each hematemesis. A single copious hemorrhage is not necessarily an indication for operation. In ulcers at or near the pylorus, pyloroplasty is ideal. It makes local treatment possible and gives all of the benefits of gastro-enterostomy, and is safer. Cauterization and curetting of the ulcers should give place to resection whenever the stomach wall can be reached from without. If adherent posteriorly and at ends of stomach, cauterization, curettement, and ligature *en masse* are the best substitutes for excision. Ligature *en masse* is shown to endanger perforation, except when supported by external sutures.

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DISEASES OF CHILDREN.

Adenoid Vegetations of the Pharynx, Significance and Treatment.—Klemperer¹ states that five per cent of all children suffer from adenoids. The only known cause thus far is heredity; neither syphilis, tuberculosis, nor scrofula has any connection with them. Their greatest significance lies in the fact that they obstruct the nose and the opening of the Eustachian tube, thus leading to otitis media and even to permanent deafness. All the direct and indirect results of mouth-breathing appear, together with the characteristic and stupid facial expression. The diagnosis should be settled by demonstrating the adenoids by the palpating finger or by the mirror. The only possible treatment is the removal of the vegetations by operation, which should be done as soon and as thoroughly as possible, under narcosis. The only after-treatment required is twenty-four hours' rest in bed, compress to the neck, and ice in the mouth.

Belladonna in the Broncho-pneumonias of Children.—D. A. Hodghead² has in 30 cases used belladonna and calomel in the treatment of broncho-pneumonia in children, and in only 2 of the cases has it proved ineffective. He claims nothing original for the use of calomel, the remedy having been used in this disease many years. It stimulates the emunctories, renders the exudation matter in the lungs and bronchi less dense and less tenacious, clears out and cleanses and makes aseptic the intestinal canal. It must be given in small doses, frequently repeated, until its cathartic influence is secured. The belladonna has just the physiological action that it is desirable to secure in the disease.

1. In small doses it is mildly narcotic, producing a slightly sedative influence upon the nervous system, and having a tendency to make the child less irritable and its condition less uncomfortable. 2. In small doses it is a heart tonic, raising the arterial tension, and increasing the circulation by stimulating the cardiac sympathetic, and in a corresponding manner depressing the pneumogastric, the inhibitory nerve. 3. It is a respiratory stimulant, influencing in some degree the diaphragm, but more especially does it affect the accessory respiratory muscles, although its action in this regard, it must be confessed, is not yet fully understood. 4. Belladonna produces a dilatation of the superficial capillaries, and in a corresponding degree, and in the same manner, relieves the congested lungs. It also produces an increased secretion of urine and of bile. 5. The most important influence, however, which the drug exerts, and the one which bears directly upon the question at hand, is in diminishing secretion in the bronchial tubes and pulmonary tissues. The water-logged condition of the lungs is overcome or prevented. Its effects in such instances seem almost mechanical as well as marvellous. The superabundant and dangerous secretions are diminished in quantity, and the threatened asphyxia, which becomes completed when these secretions increase so abundantly that the child is unable to rid

its lungs of them, is averted. The belladonna, to be effective, has had to be administered in quite large doses every hour or two hours until the desired results are obtained. Children are not very susceptible to the drug, and infants a few months old can endure the same dose as children 5 or 6 years old. The drug is less effective in the beginning of the disease, when the bronchial mucous membranes are dry and congested, than later when the bronchial secretions are superabundant.

Choreiform Movements following Varicella.—Menko³ reports a severe case of varicella in a girl 4 years old. The fever was high during the first few days and the eruption very profuse. Twelve days later choreiform movements began in the face, arms, head, and tongue. Bromide of soda and warm baths brought about a rapid cure. The child came of a nervous family.

Diphtheria, Medicinal Treatment of, other than with Antitoxin.—Edwin Motley Fuller⁴ is a firm believer in the treatment of diphtheria with antitoxin injections, having such faith in the remedy that he would use it even where there is a doubt regarding the diagnosis, as well as in cases formerly regarded as "croup." But he says there is no doubt that there is a medical side to the treatment of this disease. Great debility and prostration are caused by the action of the poison in the system, and medicines are needed to fortify the system and maintain it at a high standard. The prophylaxis of the sick-room is also of great importance. It should be clean and as sparingly furnished with hangings, rugs, etc., as is consistent with comfort and cheerfulness. All sputa and excretions should be immediately sterilized and destroyed by fire or burial. Towels, napkins, and wearing apparel of the bed, and dishes, should be sterilized. At the termination of the case everything used in and about the sick-room should be sterilized with formaldehyde. A moist, medicated atmosphere is ameliorating and comforting. The author likes a solution of the compound tincture of benzoin and eucalyptol in a steam atomizer or spray, alternated with the slacking of lime. Gargles are important, and peroxide of hydrogen, twelve to seventy-five per cent solutions in water, stands at the head. Chlorate of potash in moderate doses is useful when there is difficulty in raising the mucus and exudates from the throat, and when there is some pain he has found the following prescription of service:

℞ Syrupi ipecac.....	3 ii.
Tinct. benz. co.....	ss.
“ hyoscyami.....	ss.
“ myrrhæ.....	ss.
Syrupi tolutani.....	q. s. ad cr.

M. and S. Gargle 15 to 20 drops in half a wineglass of water every half-hour; also swallow a little each time.

Local sprays he considers important, and Frye's atomizer an ideal instrument for the purpose, using equal parts of Dobell's solution and peroxide of hydrogen. A ten per cent solution of

eucalyptol in benzoinal stands next as a spray for the nasopharyngeal cavity, and can be sprayed about the patient and forcibly breathed into the lungs as an antiseptic. At the onset of the disease it is desirable to elicit the co-operation of the sympathetic system at once; the eliminating and excretory organs should be stimulated to their best possible condition and maintained at their highest physiological standard throughout the course of the disease. To do this the author would give small doses of calomel often repeated, say one-tenth-grain doses every half-hour until ten doses are given the first day; after that five doses each morning, following with half a Seidlitz powder, repeated every hour until the bowels had moved at least once. These powders have a remarkable influence upon the bowels, kidneys, and bladder. The heart demands medication and sustaining. Statistics show that when the pulse rate is over 150 the death rate is 50 per cent. Irregularity of the heart alone, without excessive rapidity, shows a mortality of 47 per cent. A slow heart appears to be dangerous, especially in children. Tincture of digitalis and tincture of strophanthus, together with strychnia, either in one-thirtieth or one-sixtieth grain doses, are demanded. In critical cases the strychnia will give better results if administered hypodermatically. For the condition of the blood five- to ten-drop doses, frequently administered, of the tincture of the chloride of iron should be given. Quinine, in addition, is valuable. The nervous condition often observed, especially in children, may be met with small doses of morphine. Warm or, in painful cases, hot packs are soothing. Small-sized cloths close to the throat are the best. Milk, fortified with full physiological doses of whiskey or brandy, constitutes stimulating nourishment. Rich broths of beef and mutton, beef and liquid peptonoids, may be given. Nutrient enemata, or nourishment given by stomach tube, are useful in cases of difficult deglutition.

Echinococcus of the Liver, Operation for.—Budinger * reviews the literature and reports the case of a girl 12 years old who noticed a swelling in the hepatic region for a year, with vomiting and nausea upon pressure. She had played much with dogs. The painless, fluctuating tumor was punctured and a clear, non-albuminous fluid withdrawn; no hooklets were found. Laparotomy was performed and an egg-sized cyst removed from the liver. The microscope confirmed the diagnosis of echinococcus. Perfect healing resulted, and the patient remained well for five years, when pain in the right side, vomiting, and bulging of the right thorax and abdomen developed. At the operation an echinococcus cyst as large as a man's head was found, surrounded by the merest shell of liver substance and very adherent to the abdominal wall and diaphragm. Many quarts of fluid were evacuated. Three months later the girl had gained thirty-eight pounds. It is probable that after the first operation some very young elements remained behind in spite of the careful removal of

the unilocular cyst at that time; these developed later into the second tumor.

Enlarged Glands in Children.—Carl Ludwig Schleich* sums up his views on the management of enlarged glands in children as follows: First, there are far too many cases of total extirpation, when methodical enucleation or simple incision would have fully sufficed for the cure. Extirpation of lymph ganglia in children with the lymphatic dyscrasia is an error, for it is the constitution which is diseased and not the local area. Cheesy hyperplasia should be treated by enucleation, provided that a fat diet, iodide of potash, and mercurials fail to produce resolution. A syphilitic taint underlies cheesy glands oftener than is generally believed, which makes the advisability of specific medication the more urgent in these cases. In simple abscess we should incise and tampon, while in multiple suppuration we should carefully extirpate the foci without any attempt to excise adherent capsule. When the glands are the seat of tumor-like enlargements, the most radical treatment is the most rational procedure.

Immunity, Schleich's Theory of.—An editorial* says in part: "Schleich has advanced a very ingenious theory that immunity is essentially local and dependent upon the lymphatic apparatus. In support of his views he adduces a vast number of clinical facts. In general his belief is as follows: A poison is inoculated or absorbed in some portion of the body, and first passes into the local lymphatic system, where it occasions more or less irritation, proliferation, and thickening of the lymphatic structures, with resulting diminution of the capacity for absorption; this constituting immunity of a certain kind and degree. To cite examples: The poison of measles is inhaled or swallowed, and the lymphatics which drain the respiratory or digestive organs are infected and, as a consequence, are largely obliterated, so that for years, at least, it would hardly be possible to contract the disease anew by the route of the original attack. Notwithstanding this relative immunity, no protection at all would be offered if the virus were injected directly into the blood. A man may have any number of vaccination scars, yet variola may be communicated by intravascular injection. When a well-vaccinated individual takes small-pox, as he does at times, it is almost certain that the virus has entered by some unique route. While Schleich's theory may repel at first, it is difficult to explain a great number of clinical facts in any other manner, and we may assume that there is a lymphatic immunity such as he describes, but we need not follow him when he declares that there is no other plan of immunity possible."

Lymphatics, Function of Peripheral.—An editorial* thus comments on Schleich's theory in regard to the treatment of the glands: "He seems to be the originator of a sort of humane movement to spare these structures under all circumstances, except when they are the seat of malignant tumors. By keen and patient observation, extending over years, he has been able to show that extirpation of the axillary, cervical, or inguinal

glands paves the way for erysipelatous infection, elephantiasis, tetanus, pyemia, etc.; or, in other words, this sacrifice of glands vastly diminishes the resisting powers of the body. In this way is explained the frequently noted fact that after extirpating cervical scrofulous glands the patient succumbs to general tubercular infection, since these important defensive structures can no longer oppose the penetration of the virus of the disease into the circulation. Therefore, in simple hyperplasia of the glands, even when it persists for years, Schleich never thinks of operative interference. He fortifies the patient's health in every possible way, and administers the 'mixed treatment,' which is generally held to be a specific only in syphilis, but which, in Schleich's opinion, is equally efficacious in strumous glands and in all processes where a cell infiltration tends to resolution through fatty degeneration of its corpuscular elements. Even when caseation has set in, as shown by the general condition of the patient, Schleich forbears for a long time to use the knife, relying upon the plan of treatment described above. Only when it becomes apparent that operative interference will be necessary does he perform a conservative operation, which consists in splitting the enlarged glands and scraping out the cheesy foci. The sound capsule of the gland, with some of the cortex, is thereby preserved, the residual hyperplastic tissue undergoes resolution, and the integrity of an important structure is not compromised. When pus has formed, Schleich evacuates it. Simple incision is all that is necessary for an ordinary abscess, but when chronic suppuration is present in small multiple foci the indications for extirpating all pyogenic surfaces must be carried out, although Schleich refuses to interfere to any great extent with the inflamed and adherent capsules of the glands. He aims throughout to preserve these structures, in order not to deprive the region of the body affected of lymphatic protection."

Pneumonia, Case of Acute Rheumatic, in Childhood.—Schmeyer⁷ describes the case of a girl, 15 years old, who, three weeks after a mild attack of articular rheumatism, was taken ill with a right-sided pneumonia which ran its course without any cough or expectoration. Some days after the onset of the pneumonia severe pains appeared suddenly in the knees and right ankle with the characteristic swelling of acute articular rheumatism. Endocarditis and pericarditis with effusion also developed. Believing the lesions in the lung, heart, and joints all to be of a similar (rheumatic) nature, sodium salicylate was given and the child made an excellent recovery.

Pneumonias of Sucklings in the Course of Diseases of the Gastro-intestinal Tract and in Septic Infections.—J. H. Spiegelberg,⁸ from the results of many investigations, has come to the conclusion: 1. That the greater number of lobular pneumonias occurring in the course of gastro-intestinal disease in sucklings are essentially bronchial infections, aided and abetted by the outer and inner disease condition. 2. That the most unfavorable cases may become the source of a sepsis, as

all the disease conditions may mingle in mutual dependency. 3. That they, moreover, must be separated completely from septic diseases, and cannot be termed partial manifestations of gastro-enteritic general infection carried through the system by the lymph channels.

Poliomyelitis Acuta following Influenza in a Girl of Fifteen.—Burkhardt⁷ reports the case of a healthy girl of good family history whom he treated for an acute attack of influenza, and was surprised to find, on the third day, complete paralysis of both legs and great weakness of both arms. Reflexes were abolished, but sensation remained normal throughout and there was never any paralysis of bladder or rectum. A diagnosis of acute poliomyelitis anterior having been made, electrical treatment was begun and continued for almost nine months. Mild massage was begun in the second week, and improvement was gradual. Hot sea baths were persisted in for two and a half months and did much good. Bicycling and dancing were begun about eight months after the onset, and finally, a year and a half after the illness, no trace of the paralysis remained. The author pleads for long-continued treatment of these cases, if necessary during months or a year.

Progressive Muscular Dystrophy.—Schlesinger⁸ demonstrates a typical case occurring in a 9-year-old boy, whose elder brother has the same disease. Both cases are remarkable because they began with a contracture causing pes equinovarus and the raising of the heels from the ground, so that the boy stands on his toes. It is possible that a spinal lesion is present in these cases, as the absolute differential diagnosis is quite impossible.

Prolapse of the Rectum in Children.—Leon Artaud¹⁰ says that the cause of this affection is universally considered to be some strain, as coughing, defecation in constipation, etc., but he considers the determining cause to be some form of infection, whether it be produced by the retention of substances which ferment in the intestines or by a diarrhea which introduces and holds infectious agents at the end of the large intestine. Duchaussoy says: "We conclude that diarrhea and constipation produce prolapse of the rectum only after having determined atony of a portion of the muscular apparatus of defecation, they having, to be sure, caused a previous alteration of the mucosa admitting of its descent." Had the theory of microbes been known at the time he wrote this, he would have added: "This alteration is due to infection." As corollaries of this statement the author holds: 1. That careful antisepsis of the lower part of the large intestine, which is so easily effected in children, will be almost certain to prevent prolapsus. 2. That this affection, while not as frequent as was once supposed, is not a rare occurrence, but with the prophylactic measures at our disposal it can be made extremely rare in hospitals. 4. Medical therapy is frequently sufficient for a cure, but if surgical intervention be necessary the opera-

tion to be chosen should be one involving the least loss of substance, except in extraordinary cases.

Santonin Poisoning, Case of.—Aronsohn⁹ observed a case in a boy $2\frac{1}{2}$ years old who was given eleven tablets of 0.03 of santonin for worms. The medicine was followed by an alcoholic drink, which at once caused symptoms of poisoning, consisting of pallor, unconsciousness, perspiration, and facial twitchings. Energetic treatment resulted in complete cure.

Sarcoma, Primary, of Prostate.—Schalek¹¹ collected 27 cases in medical literature, to which he adds that of a boy $3\frac{1}{2}$ years old, admitted for swelling and abdominal pain of six weeks' duration. There was incontinence of urine following suppression, emaciation, anemia, and cardiac dilatation. The abdomen was protuberant, pointed, resistant, and flat on percussion. The catheter encountered strong resistance before entering the bladder, and withdrew 900 cubic centimetres of urine, causing a diminution in the size of the abdomen. It seemed as though a swelling surrounded the neck of the bladder. At the operation the bladder with the adherent tumor was removed entire and the ureters stitched to the rectum. Death occurred five days later. The autopsy showed a generalized fibrino-purulent peritonitis and a lobular pneumonia with purulent bronchitis. The tumor removed was as large as a man's fist, involving the entire prostate and surrounding the neck of the bladder. Microscopically it proved to be a mixed-cell sarcoma, with hemorrhages in some places. The age of the tumor was about two months.

Semeology of the Attitude and Motor State in Children.—Samuel W. Kelley¹² believes in the importance of obtaining the complete history of a case whenever that be possible. Many times, however, we are able to get so limited a history of the illness that we are compelled to fall back on the objective symptoms. As a matter of routine the patient's pulse is felt, his tongue inspected, and mental notes are frequently made of his color and the state of his nutrition. Temperature is also closely watched, but there are other symptoms of disease, of equal or sometimes greater importance, which are too often neglected. Among these are the attitude and the motor state. These are more reliable indices in the child than in the adult, and in the infant than in the older child. The younger the patient the less the attitudes and motions dictated by fashion, altered by occupation, influenced by habit or affection, or assumed with the intention of deceiving. The attitudes of a well child are graceful and easy. Conversely an uncomfortable or restrained attitude or movement indicates disease or injury. If a child becomes inactive when awake or restless during sleep, something is wrong with him. Constitutional diseases affect the entire motor state. Local diseases, excepting those of the nerve centres, affect motor states locally, or they may affect remote parts of the entire physique sympathetically or reflexly. If called to see a child agitated by a general convulsion, one runs over in one's mind the classifica-

tion of convulsions, and looks for other symptoms which will enable one to determine whether it is idiopathic, symptomatic, sympathetic, toxic, or thermic. If the child is in a state of general muscular relaxation, one knows that it has either brain disease or extreme prostration. If the patient insists on sitting up or reclining against high pillows we at once suspect heart disease, although it might be asthma or pneumonia, or a double pleurisy with effusion, or even tonsillitis or bronchitis. When a patient with high temperature and muscular or mental apathy resumes his muscular activity, we know that he is getting better. When a child which has been sick for some time begins to toss about on the bed, constantly changing position and at rest nowhere, it is a semeion of evil. In the eruptive fevers it may mean the onset of some complication. In croup or other disease of the respiratory tract it indicates grave air-hunger. If there has been hemorrhage it shows extreme anemia. We are all familiar with the attitude of children suffering from whooping cough, who grasp any object near and hold it fast until the paroxysm is past. The author has observed this in no other disease. If the child lies on the back, and cries whenever touched or moved, one thinks of pleurisy, inflammatory rheumatism, peritonitis, scurvy, pseudo-paralysis, or extreme rickets. In the child lying on his back with his legs drawn up we suspect peritonitis, but it might be a distended bladder or hernia. If he draws up his legs, to lash out again and twist and turn himself, he likely has irritation and pain, but not inflammation. An attitude on the side, with the extremities in the position of the fetus *in utero*, but with the head retracted, is often seen in the late stages of tubercular meningitis or other intracranial inflammation. If a child persistently lies or kneels with his face toward the wall or in a pillow, we suspect inflammation of the eyes or of the brain or its membranes. If a child persists in nursing from one breast or in lying on one side, we look for pleurisy or pneumonia of lower side. When pleura is distended with fluid it may prefer dorsal decubitus. Too long a drainage tube or improperly placed pillows, in a child who has had a thoracotomy or resection, may cause it to refuse to lie on the affected side. The retracted head, so familiar in meningitis, may accompany cerebellar tumor, diphtheria, pneumonia, or even typhoid fever. With caries of the cervical spine and retropharyngeal abscess also there may be rigidity of the cervical muscles. The head lolling forward on the breast is seen in paralysis following diphtheria. Opisthotonos may mean spinal meningitis, tetanus, and even strychnine poisoning. A locked jaw points to trismus nascentium and tetanus. The author alludes to a few of the many nervous diseases existent. The drunken reel or uncertain walk of cerebellar diseases may be seen in childhood. A flaccid, paralyzed limb indicates either peripheral or spinal trouble. If it is spastic or rigid we expect to find other evidence of its cerebral origin. But a rigid muscle or set of muscles is not always due to nervous disease, but is Nature's effort to immo-

bilize inflamed tissues adjacent, and results from reflex action. If a single arm appears paralyzed in a new-born infant, very likely it is a birth palsy; but it may be due to fracture of a clavicle or separation of the upper epiphysis of the humerus, which may simulate paralysis or be associated with it. If an older child refuses to use an uninjured hand or forearm, the collar bone may be broken. He may refuse to put his foot to the floor, and we may then find that he has psoas abscess, pericecal inflammation, ureteral calculus, or a hernia. As to knee jerks, they are diminished or absent in paralysis of spinal origin, and increased in those of cerebral origin. Speaking generally, the muscular movements elicited by electricity are unchanged in cerebral palsies, but show alteration in the spinal palsies, being diminished or lost in destructive disease of the cord, and increased if the cord is only irritated but not destroyed. Paralysis of the side of the face at birth is due to pressure on the facial nerve, probably by the forceps, but in an older child is most likely caused by ear disease. The waddle of pseudo-hypertrophic paralysis has been likened to the walk of double talipes varus. There is great difficulty in distinguishing between paralysis and that which Fothergill calls "the muscular listlessness of malnutrition," and care must be exercised in diagnosing between true paralysis, the pseudo-paralysis of scurvy, and the acute epiphysitis of hereditary syphilis. Muscular as well as mental apathy, listlessness, or aversion to exercise characterizes the rachitic. The author enumerates a number of diseases, the characteristic objective symptoms of which he has not space to describe, and ends with the declaration that he does not wish to decry the use of all the modern instruments of precision and new methods of investigating disease, but to draw the attention of practitioners to methods always open to the physician's unaided powers, which he has with him in country or in city, by day or by night.

Spasmodic Diplegias of Childhood.—Joseph Sentz¹³ says of the "Little-Brissaud" type of affection that the characteristics attributed to this special type do not belong exclusively to it, but may also be observed in the other forms of spasmodic diplegias of childhood. All these characteristics unite to form a syndrome which may be designated as that of Little, but it is not to be considered as absolutely different from those of other varieties of the affection, for the clinician may meet with every variety of symptoms—pareto-spasmodic motor symptoms, more or less paralysis, generalized or not, associated or not with intellectual trouble or with epileptic attacks. In the spasmodic diplegias, of which the Little-Brissaud type is merely a variety, alterations varying in amount and degree have always been found in the region of Rolando's fissure and sometimes in the frontal lobe. The symptoms are due at first to the localization and then to the intensity of the cerebral lesions, whose nature they, however, do not indicate. The alterations in the pyramidal bundle are due to these same cerebral lesions, a hemato-

myelia, or a congenital transverse myelitis of the cervical region causing a pseudo-Little's disease, and not a Little's disease of spinal origin. Premature birth, given as a cause of Little's disease, may also occasion the other forms of the affection. The author gives the following table:

SPASMODIC DIPLEGIAS—I. *Etiology*. Includes these five conditions: (1) premature birth; (2) difficult labor, or asphyxia; (3) toxic infections of mother or of fetus; (4) hereditary syphilis; (5) heredity.

II. *Pathological Anatomy*.—The pyramidal bundle is always the seat of a lesion, either in its cerebral portion alone or in both cerebral and spinal portions. Whence two subdivisions: *Cerebral lesion*—lobar sclerosis, porencephalitis, cysts, meningeal hemorrhages, etc. *Secondary medullary lesion*—agenesia, sclerosis (consecutive to cerebral lesion).

III. *Clinical*.—Two chief forms: 1. Cerebral: unilateral or bilateral spasmodic hemiplegia with disorders of intellect; convulsions and choreic-athetotic movements. 2. Medullary form: spastic paraplegia.

Serum Diagnosis in Childhood.—Pfaundler¹⁴ has made more than 1,200 observations on children whose average age was 6 years. In typhoid fever the Widal test always gave a positive result. The earliest reaction occurred on the fifth day, the average at the end of the first week. It increases during the second and third weeks. The dilution limit was 1:100 or 1 per cent, as against 1:350 in adult life. Cultures of the colon bacilli obtained from healthy intestines give no reaction with the serum of healthy infants and young children in dilutions of 10 per cent. Occasionally in older children a reaction is obtained in dilutions of 1:30. All children whose serum reacted up to 10 per cent with cultures from their own feces were sick with some form of intestinal disease, either alone or with peritoneal or bladder involvement. Colon bacilli cultivated from the bladder gave positive results in cases of bladder disease, but heterologous cultures rarely did so. The bacillus mesentericus gave positive results when cultivated from the feces of a case of enterocolitis, and from the urine and the blood of a case of phlegmon of the bladder. In one case of lactic infection of the intestines the bacillus lactis aerogenes was cultivated from the feces and gave a positive reaction with the child's serum. The bacillus proteus vulgaris reacted in one case of Weil's disease and another of enteric catarrh. In several severe cases of pyocyaneus infection in infants a negative result was obtained with the bacillus pyocyaneus. Streptococci cultures gave positive results in cases of sepsis.

The Death-dealing Long-tube Nursing Bottle.—Ernest Wende,¹⁵ in order to establish the danger of these tubular thoroughfares for the introduction of pathogenic microbes into the infantile economy, and the justification of suppressing them by legislation, resorted to a series of investigations, microscopically, bacteriologically, and chemically. The microscopic examination of transverse sections, cut from unemployed rub-

ber tubes from nursing bottles procured at various drug stores, showed that they were manufactured out of rubber sheeting cemented together at their longitudinal margins to complete the tubes, and the seams thus formed were found unfailingly imperfect in their construction, showing throughout their entire length elongated pits and sinuses, which in their functions can only be likened to our modern bacteriologic "breed ovens." In some instances the tubes were constructed of more than one layer, between which enormous spaces were frequently developed, directly connected with the lumen of the tube by the pits and sinuses already referred to. Moreover, the material used in this tubing is remarkably porous, the pores varying greatly in size and shape. It would be difficult to imagine a more efficient arrangement for the propagation of germs. By reflected light the inner surfaces exhibit a view apparently made up of roughened and scraggy elevations and depressions, with many openings and clefts extending deeply into the texture. It is obvious that any foreign material gaining entrance to this perilous combination of pits, sinuses, and porosities cannot be removed by any of the ordinary methods of cleansing; and it is extremely doubtful whether bacteria, when once lodged in these incubators, can be displaced or even destroyed by any known germicide or chemical.

From the bacteriological examination of an infected rubber tubing the author was able to recognize a deposit of decomposing material coating the inner surface, being thickest in those portions of the lumen in close proximity to the nipple and glass tubing. This débris was found to consist of coagulated casein with innumerable bacteria of varied morphology. The qualitative bacterial examination demonstrated the *bacillus acidilactici* to be the predominating organism. The *staphylococcus pyogenes aureus* and *onidium albicans*, with three other distinct species, two of which belonged to the non-chromogenic bacilli, the third being a chromogenic micrococcus, were present, and, in addition, several species not yet completely isolated. Five decigrammes of this grumous conglomeration, dissolved in two cubic centimetres of sterile water, and injected intraperitoneally into each of three full-grown guinea-pigs weighing respectively 200, 254, and 261 grammes, produced death of these animals in from forty-eight to sixty-one hours. Another experiment verified the fact that the prolonged effect of decomposed milk on rubber will mash, mangle, and disintegrate it. Chemical analysis and investigation proved that this process of decomposition and divulsion was due to the fermentation of the lactose of milk remaining in the tube. An intimate part of the tubular mass consisted of zinc oxide as a filling, which, in the cheaper grades, was considerable in amount. This substance, under the influence of the *bacillus acidilactici* and probably other bacteria, supplied one of the conditions favorable for the continuous production of lactic acid, the other condition being the presence of stale milk in the lumen of the tube. At the ordinary temperature these

micro-organisms decompose the lactose, giving an interchange of elements as follows: $C_{12}H_{22}O_{11} + H_2O = C_3H_6O_3$. However, a certain degree of acidity puts a stop to the growth of bacteria and to the production of acid, but if the acid is neutralized, as formed by zinc oxide, as in this case, the decomposition is a continuous one. The casein was also more or less decomposed, which gave rise to bad-smelling products that remained in solution or else passed off in the form of gases. The presence of the zinc lactate, which was soft and hygroscopic, coupled with the other soluble casein products, rendered the rubber doughy, indicating further injury dependent on micro-organisms. The author believes that the long-tubed nursing bottle should be considered as a premeditated plan for the poisoning and killing of infants, and demands special treatment by law. Nipples are open to the same objections as the tube, but they can be inverted and are thus more easily cleansed. Two nipples should be employed, kept in a solution of bicarbonate of soda, and used alternately. The statistics of the city of Buffalo demonstrated that the majority of deaths from cholera infantum occur among those who use the long feeding tube.

Three Steps in the Tuberculous Process in Children.—David Bovaird¹⁶ thus summarizes the points made in his article: 1. The primary lesion of tuberculosis in children is regularly in the bronchial lymph nodes of lungs. Combining Northrup's series with those described in the paper, we have:

	Northrup.	Bovaird.	Total.
Infection by respiratory tract (lungs or bronchial nodes).....	88	60	148
Infection by mesenteric lymph nodes.....	3	0 (?)	3
Indeterminate.....	34	15	49
	125	75	200

2. As to early manifestations of tuberculosis in children, these are extremely indefinite and uncertain. (a) Tuberculous infection of the bronchial lymph nodes, as a rule, cannot be diagnosticated. (b) Latent tuberculosis is often roused and disseminated by the invasion of another disease (infection), such as measles, diphtheria, etc., the presence of tuberculosis not being suspected. (c) The common type of tuberculosis in children is acute miliary tuberculosis; it may occur in well-nourished infants. (d) The course of tuberculosis is most often confused with chronic broncho-pneumonia or enterocolitis. (e) The early manifestations are progressive emaciation, fever, and the presence of râles over the lungs. These are insufficient for purposes of distinction. 3. The terminal lesions include: (a) Extension of the tuberculous process in the bronchial lymph nodes and lungs, resulting in the formation of

abscesses, cavities, etc. (b) Diffusion of the tuberculous infection, constituting acute miliary tuberculosis, the principal viscera being affected in the following order: spleen, liver, brain, kidney, heart. The involvement of the brain is most important, the meningitis being regularly fatal. (c) When bone is involved and there is prolonged suppuration, waxy degeneration of the viscera may occur.

Trichobezoar in the Stomach.—Schopf's¹⁷ case is the eighth successfully operated upon by gastrotomy. A 12-year-old girl, delicate and subject to attacks of indigestion, presented a mass in the epigastrium which had the form of a sausage and was 6 centimetres long; it was movable and but slightly tender, and was diagnosed as a splenic tumor. At the operation it was found that the growth lay free within the stomach, which was, therefore, opened. The hairy mass not only filled the whole stomach, but was prolonged by a thin strand, 40 centimetres long, into the duodenum. Recovery was rapid and complete. The tumor consisted of blonde and black hairs. The former were the patient's own, the latter those of her dog. It had been her habit since the age of 5 to nibble at her hair, and she had been punished frequently for it. While bezoars are common in animals, they occur also in young, hysterical persons, especially of the female sex. Only 1 of 16 reported cases affected a male, and that a boy of 16.

Tumors, Simultaneous Appearance of Two Cerebral.—Behrendsen¹⁸ reports the case of a 14-year-old boy, of neurotic family on the maternal side, who developed strabismus and diminished mental ability after a fall from his horse when 10 years old. Gradually nocturnal headaches came on, with anorexia and constipation. There were slight ptosis and abducens paralysis on the left side, with right facial paralysis, and diminished power in the left arm and leg; right ankle clonus and diminished sensibility of right side. There was an evening rise of temperature. All the symptoms grew worse, and six weeks later a sudden attack of general convulsions appeared, with death nine days afterward. At the autopsy a hard neoplasm, 3 x 2 x 1 centimetres, was found adherent to the left side of the pons, while in the left hemisphere was a soft tumor, 11 x 7 x 5 centimetres in diameter, which had penetrated the left lateral ventricle. There was also hydrocephalus. The smaller tumor was a cholesteatoma, the large one a glioma. The sudden convulsions were undoubtedly due to the perforation of the left ventricle at that time, and the fall four years before had nothing to do with the development of the glioma, but probably did stimulate the slow growth of the cholesteatoma, whose position and pressure were responsible for the very severe respiratory and deglutition symptoms of the last few weeks. The case is a very rare and interesting one.

Tuberculosis of the Flat Cranial Bones.—Feder¹⁴ collected 26 cases under 5 years old from the literature, and reports 5 cases of his own. Of these, 3 were girls and 2 boys. In age

they varied from 7 weeks to 2 years. Three resulted in spontaneous cure. The frontal and parietal bones are the ones most frequently attacked. A cold abscess develops at the point of infection, and the subjective symptoms are not marked unless much pus forms between the bone and the dura and causes pressure. The abscess usually ruptures externally, and sequestra are discharged through the resulting fistula. In making the diagnosis lues must be excluded, and for this purpose it is often good to try antisyphilitic treatment. The prognosis is good for the local lesion, but usually the internal organs are involved. The therapy should be conservative; if possible, hygienic. Operation becomes necessary when symptoms of meningitis appear.

Universality of Glandular Tuberculosis in Children.—An editorial¹⁹ is as follows: "The old German army surgeon who expressed to the distinguished Niemeyer his belief that all people have a touch of tuberculosis, would have good company if he were living to-day. Volland, who examined 2,500 school children, found that between the ages of 11 and 9 years no less than 96 per cent had indolent, multiple, engorged cervical glands, which phenomenon he holds to be a pure tuberculous manifestation. This percentage becomes rapidly less with each succeeding year, until in adult life the number of individuals who present the phenomenon is comparatively small. In other words, the vast majority of children suffer during one period of their lives with a form of tuberculosis essentially benign and self-limited. Blos, of Heidelberg, on the strength of these findings of Volland and others, scouts at the idea of the diffusion of tuberculosis by inhaling infected air and drinking infected milk, and returns to the old view that gland scrofula almost always precedes phthisis, so that one who develops consumption is self-infected from his own tissues. At the recent Congress of Tuberculosis at Berlin, several distinguished pediatricists agreed that the most direct and certain method of arresting the spread of tuberculosis was to treat scrofulous children in seaside sanatoria; whence we infer that they hold views akin to those of Blos and Volland. If practically all children have gland scrofula in a more or less benign form, it is a simple and most natural hypothesis that the weaker among them suffer later from pulmonary tuberculosis from autoinfection. We suggest that the profession set about confirming or denying Volland's alleged discovery without delay, by investigation of the cervical glands in connection with autopsies upon children."

Ununited Fracture in Childhood.—Edmund Owen²⁰ begins his article with two questions: 1st. Why is non-union after fracture of the tibia and fibula in children of comparatively frequent occurrence? 2d. Why does its treatment by operation so often end in amputation? In the adult the chief cause of non-union after fracture is want of rest, and possibly this is one of the causes of the frequent occurrence of pseudoarthrosis in the child's broken tibia; the fracture (which may have

occurred *in utero* or at the time of birth) is not detected and not treated, and the child is carried about, the leg hanging over the mother's arm, the weight of the foot constantly drawing the lower end of the tibia backward, the salient angle at the fracture being directed forward. If neglect of ordinary precautions be, as maintained by Packard and others, the actual explanation, how is it that pseudoarthrosis almost invariably follows the operation which, for ununited fracture in the adult, is always successful?—for there is no “neglect of treatment” after operation has been performed. It is worthy of note that in some of the cases the tibia was bending before it broke, or that there was a doubt at first as to whether the bone was bent or actually broken. Sometimes the fracture follows an attempt to straighten the bent bone. There was, in other words, some ill-defined condition leading up to fracture. If this be so, it should make the surgeon not only cautious, but apprehensive, when he proposes to straighten an antero-posterior bending in a child's leg. As to the cause of the almost invariable failure of operative measures, Owen says that he has nothing definite to offer. It has been suggested that previous to its fracture the bone may have been the seat of an obscure affection somewhat allied to mollities ossium. He has, however, not found any remarkable softening of the bone. As to theories, what is wanted is one which shall at the same time explain the easy fracture of the bone from some slight injury; the absence of bony union whether the fracture be well treated or not; and the complete failure of those operative measures which can be depended upon for success in the treatment of pseudoarthrosis in the adult. The only theory which, in his opinion, is able to answer all these requirements, is that which invokes the influence of the trophic nerves. He suggests that leading up to the fracture there is some subtle disturbance in the anterior cornu of the gray crescent of the cord, inhibiting the due nutrition of the bone and rendering it weak and friable, subsequently interfering with repair, and eventually frustrating the best endeavors of the operating surgeon. He would thus ally the condition to the molecular disturbance of the crescent, which entails infantile paralysis, but one which expends its influence upon bone rather than muscle. This theory, however, can neither be confirmed nor exploded except by careful examination of transverse sections of the cord made in the case of an ununited fracture, the opportunity for which is not likely to present itself.

Vaccination Sores.—A. K. Bond²¹ says that the belief prevails that a sore half an inch or more in diameter, suppurating for weeks, and even for months, is an occasional sequel of successful vaccination, which must be borne with patience, and is to be treated as well as may be with dressings of mild powders and salves of various sorts. He states, however, that the most repulsive of such sores may be caused to cease suppurating and to become a dry, scabbed sore in even a single painless dressing, and may be healed within, perhaps, a week. The dressing

referred to is a solution of nitrate of silver, about 80 grains to the ounce of distilled water. When such a sore is brought to him he removes the scab, if it has one, washes the surrounding skin clean, perhaps using alcohol, and mops the sore carefully with the silver solution until its surface is covered with a thick layer of white. When this has dried, a dressing of absorbent cotton with bismuth or what not dusted on it is applied. The pain of the silver in this strength is insignificant; the itching and irritation greatly diminish or disappear; the suppuration is permanently or for many days stopped; the patient almost forgets the sore. In some cases the dressings after a week or more begin to become soaked with pus. A second nitrate of silver application may then complete the healing.

The only reason that the author can suggest for the obstinacy of suppuration of these sores is that the sore was originally a pustule, and that when the top, or scab, comes off it leaves exposed at its site a pit walled and floored, not by healthy tissue, but by the bacteria-infecting lining of the pustule. The granulations which spring up from the floor of the uncovered vaccination pustule seem to be very weak; hence the value of the mild caustic, whose stimulating and disinfecting powers act more deeply than simple surface washes or antiseptic salves. The writer thinks it probable that all vaccination vesicles might advantageously be opened upon their appearance, and by nitrate of silver or other like application to their interior be brought at once to abortion. If the whole protective influence of vaccinia has been already received when the papule begins to swell into the vesicle, the prevention of the maturation of the vaccinia vesicle by any harmless measure would be a reasonable and a desirable undertaking.

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THE AMERICAN JOURNAL OF OBSTETRICS

AND
DISEASES OF WOMEN AND CHILDREN.

VOL. XLI. FEBRUARY, 1900.

No. 2.

ORIGINAL COMMUNICATIONS.

A CASE OF MULTILOCULAR PSEUDOMUCINOUS CYST-ADENOMA OF THE RIGHT OVARY ASSOCIATED WITH PRONOUNCED SYMPTOMS OF DIABETES.

OPERATION, WITH RECOVERY, FOLLOWED BY THE DISAPPEARANCE OF THE
SUGAR FROM THE URINE AND THE DIABETIC SYMPTOMS.¹

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THE object of this paper is to call attention to a seeming etiological relationship between certain diseases of the female internal genital organs and some cases of diabetes; and particularly to describe and present for discussion a case where, concomitant with the growth of a multilocular pseudomucinous cyst-adenoma of the right ovary, there was present in the urine seven per cent of sugar and the clinical symptoms of diabetes, followed, after the removal of the cystoma, by a disappearance of sugar from the urine, the diabetic symptoms, and the recovery of the patient. First we will consider the probability of there being a relationship of cause and effect between certain multilocular pseudomucinous cyst-adenomata and diabetes; that diabetes may possibly be in-

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, December 21, 1899.

duced by the presence and pathological influences of the ovarian growth, since, in the case to be described and one other to be found reported in the literature, the removal of this form of cystoma resulted in a complete restoration of the patient's health. Second, we consider whether the same relationship of cause and effect may occur when other lesions of these organs are present, as is suggested by a case reported by Imlach. Finally, we suggest that the induction of the climacterium may cure certain cases of diabetes.

As far as we can learn from a careful study of the literature, disease of the female internal genital organs associated in a seemingly etiological relationship with a large quantity of sugar in the urine and diabetic symptoms, has been very rarely observed.

Cases of simple and slight glycosuria following abdominal operations for various pelvic diseases have not infrequently been recorded (Goodell, Phillips, Bloom, Keen, and others), and it is also known that disease of the pelvic organs may not very rarely, coincidently and without influence, occur with diabetes. But it is not this class of cases that we shall refer to in this paper.

The only literature bearing on the subject is the report of three isolated cases by Isreal,¹ Imlach,² and Croom,³ where such a relationship was suspected, and indirect references by Tuffier,⁴ Tait,⁵ and Lecorche.⁶ The text books on internal medicine and gynecology make no mention of such an association. The special works on diabetes mellitus, as Naunyn⁷ and Williamson,⁷ do not refer to the subject, except that the former mentions the case of Isreal and the latter the case of Imlach. Naunyn states that in Isreal's case it is very probable that a previous disease process of the ovaries progressed to necrosis under the favorable influence of the diabetes, and Williamson that the case of Imlach is interesting. These writers, with Tuffier and Isreal, seem to assume that the association is merely a rare coincidence and not deserving of any special

¹ Virchow's Archiv., Bd. lxxxiii., 1881.

² British Medical Journal, July 11, 1885.

³ British Gynecological Journal, February, 1896.

⁴ Archiv. générales de Médecine, August-September, 1888.

⁵ The Practitioner, London and New York, June, 1886.

⁶ Annales de Gynécologie, October, 1885.

⁷ Williamson: "Diabetes Mellitus and its Treatment." Edinburgh and London, 1898.

⁸ Nothnagel: "Specielle Pathologie und Therapie," Bd. vi., 1898.

attention. Croom and Imlach, however, each describe a case, from the history and course of which they believe it may be fairly assumed that the disease of the internal genitals and the glycosuria stood in the relationship of cause and effect.

The case coming under my observation would seem to warrant such a belief and has led to this preliminary study of the subject.

Mrs. L. H., American, white, housewife, VIpara, 53 years of age, was referred to me by Dr. P. S. Carpenter, of Troy, Pa., on July 19, 1897. Her family history had no bearing on the case and was entirely good. Her parents died when well advanced in years. Her brothers and sisters were all living and well. Her children were all healthy.

She gave the history that she had always enjoyed the best of health, had never had a serious illness, and was accustomed to hard work during the greater part of her life in caring for her duties as the wife of a farmer. The menstrual function was established at 16 years of age, and, until the menopause, had always occurred regularly every twenty-seven days. Its duration was usually from four to five days, and it was never profuse or painful. The menopause took place abruptly at 49 years of age, and menstruation was absent for the succeeding two and a half years. She was then, without apparent cause, taken with pain in the lower abdomen, followed by a rather profuse bleeding from the uterus, which continued for a week. This pain and hemorrhage was the first indication of her present illness. From that time on the flow returned every two weeks, gradually becoming more profuse and lasting from seven days to two weeks. She considered this to be simply the return of the menstrual flow and did not consult a physician. Eight months after the onset of the uterine bleeding, or ten months before coming under observation, she discovered a tumor growing in the lower abdomen. It gave her no distress and she was therefore little concerned about it. Some time after the discovery of this tumor she began to complain of languor, weakness, deficient endurance, and sleeplessness. Her appetite was usually very good, yet she seemed to be losing weight. Her digestion was poor; she was now and then nauseated and had gastric eructations. She soon began to complain of great thirst, and noticed that she drank large quantities of water during the day and was getting up for it once or twice at night. Micturition became more and more frequent, and for many months she had been passing what she

thought was a large amount of urine. The bowels were always constipated. The symptoms of languor, weakness, sleeplessness, thirst, and frequent micturition slowly grew worse. The digestion improved and her appetite became enormous. She was always hungry.

The tumor grew rapidly and for a month before examination had filled the abdominal cavity and was causing some shortness of breath. It, however, gave her little other distress beyond an occasional sharp shooting pain and some feeling of weight in the abdomen. The hemorrhage from the uterus continued with the same frequency, grew more profuse, but was never alarming. Finally, a week before coming to Philadelphia, she consulted her physician, who at once recognized the condition and advised operation.

On admission to the hospital her appearance was quite characteristic of that of a woman having a large ovarian cyst. She had the expression known as the *facies ovariana*. Her limbs, face, and chest were somewhat emaciated. There was a small amount of edema of the lower limbs. The skin was everywhere dry and rough. She complained of the symptoms above described and believed all her illness to be due to the presence of the abdominal tumor. A physical examination of the chest detected nothing abnormal.

Examination of the Abdomen.—The abdomen was seen to be irregularly distended and filled with a tumor, the surface of which was bossed or lobulated. Three bosses, or lobules, could be determined by inspection. After practising the usual palpation and percussion it was easily determined to be a multilocular cyst, which filled the pelvis and abdomen, extending well into the flanks and reaching to within three inches of the xiphoid cartilage.

Vaginal Examination.—The vaginal outlet was multiparous. There was a bilateral laceration of the cervix. The uterus was enlarged, measuring three and a half inches in length, retroposed and displaced bodily toward the left pelvic wall by a cystic mass which was found to be part of the abdominal tumor. A diagnosis of a multilocular cyst of the right ovary was thus easily made.

Because of the symptoms which suggested diabetes, and following also the usual custom, a careful chemical and microscopical examination of the urine was made, with the following result: The urine was light lemon yellow in color, acid in reaction, and contained a small amount of flocculent sediment.

The specific gravity was 1042. No albumin or casts were found, but a large amount of sugar was detected; the amount of sugar was estimated to be seven per cent. At this time Dr. James Tyson was asked to see the patient, and agreed with me in the diagnosis of diabetes. Since the tumor was already causing dyspnea and edema of the lower limbs, and thus the more serious immediate condition, it was thought the safer plan to operate at once, although recognizing that the danger of operation would be unusually great.

Celiotomy was performed on July 21, 1897. The abdomen was opened by a free incision which extended three inches above the umbilicus. Several adhesions between the cyst wall and parietal peritoneum were separated. The largest loculus, containing a semi-fluid mucoid material, was then tapped in the usual manner and drained, after which the remaining portion of the cyst was easily drawn out upon the external abdominal wall. The pedicle, composed of the right ovarian ligament and Fallopian tube, was then ligated and the mass removed. The left tube and ovary were found to be normal, and the uterus, except that it was enlarged and congested, was also normal. The abdomen was closed, without drainage, by mass silkworm-gut suture, the fascia of the rectus muscle being closed with catgut.

The macroscopical characteristics of this multilocular pseudo-mucinous cyst-adenoma in no way differed from other cysts of this same sort which I had previously observed, nor was there any indication of degenerative change, blood-vessel change, or complication. Its weight, with the collected contents, was twenty-two pounds. The mass was composed of three large and two small loculi, containing the usual mucoid material. The material in the larger loculi varied in consistence, but was semi-fluid in all, while that of the smaller loculi was of the consistence of jelly. The ovary was completely destroyed.

Very unfortunately no chemical examination of the contents of the loculi or microscopical examination of the cyst wall was made, for the importance of this could not be appreciated at the time. We believed the diabetes would pursue the usual fatal course.

The patient made a perfectly normal convalescence, the temperature never going above 101° F. and the pulse 110. During the first eighteen hours after operation she complained very bitterly of thirst, but afterward the thirst seemed to be less than before operation. As soon as the immediate danger of

the operation was over she was placed under the care of Dr. Tyson, who prescribed sodium salicylate, ten grains every four hours, with other medicine, placed the patient on a diabetic diet, and made daily examinations of the urine. The amount of sugar in the urine was found to diminish from day to day, until at the time she left the hospital, twenty-four days after operation, it had fallen to 4 per cent. All other symptoms also lessened, and she left for home quite considerably improved in health. Our prognosis, however, was bad, and we scarcely expected much further improvement, even though her age was favorable to a chronic course. She did, contrary to our prognosis, improve, and Dr. Carpenter wrote me on November 1 that she was rapidly gaining in every way, and that on October 9 there was but one-half of one per cent of sugar in the urine. Her bowels and kidneys were acting normally. She was sleeping well, there had been no return of the menstrual flow, she had returned to the ordinary diet and was attending to her duties on the farm. The woman made the statement to him that she was enjoying better health than she had for four years. On February 17, 1898, he wrote me again that Mrs. H. was very well, working hard, and walking one and a half miles to town and back, often more than once daily; also that the sugar had entirely disappeared from the urine.

The case reported by Croom¹ strikingly resembles in history and course the one just described, and is equal in importance in showing the same possible etiological relationship. He writes as follows:

Mrs. W., age 53 years, was admitted to Ward 28 on November 24, 1894. She complained of great swelling of the abdomen at each period, with consequent dyspnea. Being an excessively corpulent woman, she had not noticed the additional enlargement caused by the tumor until five months previous to admission, though in all probability its presence might have been detected by a physician some months before. All her symptoms began to get urgent with the growth of the tumor, and she consulted a physician, who at once sent her to the Royal Infirmary.

When she presented herself at the ward her appearance was, to say the least, extraordinary. Her height was about 5 feet 4½ inches, her weight, without clothes, a little over 238 pounds,

¹ British Gynecological Journal, February, 1896.

and the girth of the abdomen 60 inches. Her complexion was pale, the lips somewhat cyanosed.

Her family consisted of one child, age 14. Menstruation had been normal and regular up till six months previous to her admission, when it ceased suddenly, there being no vaginal discharge of any kind from that date. Micturition gave rise to no pain or uneasiness, and the amount of urine secreted did not exceed the normal. On examination, however, the urine was found to contain blood, a small amount of albumin, and a large amount of sugar; its specific gravity was 1047. On November 26 she passed 25 ounces of urine, which contained 545 grains of sugar. The albumin was due to the presence of blood, the result of cystitis, and disappeared, along with the cystitis, under treatment.

There was no excessive thirst or appetite, the thoracic viscera were normal, and the skin healthy and moist and free from any eruption, not even the labia showing any signs of irritation. Her general health seemed good, in spite of her many troubles.

On examination the abdominal walls were found to be thickly lined with adipose tissue, and a pelvic abdominal tumor was felt rising as high as the eighth costal cartilage, freely movable, painless, non-fluctuating, and dull on percussion. A resonant note was obtainable in both flanks. Per vaginam but little further information was obtained. The cervix was very high up and atrophied, the uterus small and lying to the front, and the posterior and lateral fornices were empty.

With respect to the diagnosis, he had no doubt as to the nature of the tumor, regarding it as a large colloid ovarian cyst. The nature of the glycosuria, however, required some consideration. He thought that it was not a typical case of diabetes, as was evident from the absence of polyuria, thirst, etc.; and the question arose, was it a form of glycosuria which would contraindicate operation?

From November 27 to December 6 two grains of codeia were administered to the patient every six hours, the diet being modified within reasonable limits. This, however, produced little effect on the amount of sugar passed daily, the lowest record being 340 grains (ten grains to the ounce), and the drug began to cause sickness. Morphia was then tried, with no better result as far as the sugar was concerned.

As the growth of the tumor was distinctly progressing, the dyspnea becoming urgent, operation was decided upon.

Laparotomy was performed on December 12. On opening the abdominal cavity a large colloid tumor was found implicating each ovary. No difficulty was experienced in removing these and in completing the operation. The two tumors weighed together $56\frac{1}{2}$ pounds. A quick reaction followed, and for the first six days the pulse never fell below 100, the temperature remaining about 100° F. for the first four days. After this she made a good though slow recovery, and left the hospital on January 26, 1895.

As regards the glycosuria, it was noticed that, whereas a specimen of urine examined on the morning of operation contained twelve grains, a specimen drawn off six hours after contained only five grains. This excellent result was, however, only temporary, as on the following day the sugar was again up to 10 grains per ounce, the total quantity passed being 360 grains. During the first eleven days after operation no special treatment was adopted, the daily quantity of sugar excreted averaging about 370 grains, and on one day being as high as 700 grains, the amount per ounce on that occasion being 25 grains.

On December 23 morphia was resumed, the liquor morphinæ hydrochloratis being used in fifteen-minim doses every four hours, and the diet was modified to a slight extent. This was followed by an appreciable diminution in the daily excretion of sugar.

On December 26 and subsequently experiments were made on the urine passed immediately before food and that passed sometime after. It was found that the latter contained nearly twice as much sugar as the former. From that date the urine passed during the day and that passed during the night were kept separate. It was thus observed that from sixty to eighty per cent of the sugar was passed during the day.

On January 2 the morphia was stopped and the diet more rigidly restricted to nitrogenous articles. This was followed by no very marked changes for the first fortnight. Then the sugar diminished rapidly.

On January 19 only 45 grains were passed in the twenty-four hours. During the several days previous to her dismissal on January 26, only slight traces of sugar were to be discovered in the day urine, the night excretion being quite free.

She resumed her ordinary diet on going home, and has kept quite well ever since. She forwarded a specimen of urine on March 28, which, on examination, was found to be absolutely free from any trace of sugar.

From the description of these two cases it is very positively shown that concomitant with the growth of a multilocular pseudomucinous cyst-adenoma there was a large quantity of sugar in the urine; that the sugar rather rapidly disappeared from the urine after removal of the cyst-adenoma, the patients very completely regaining their health; and that the urine remained free from sugar, even though the ordinary diet was taken. In the one case there were associated very pronounced clinical symptoms of diabetes mellitus, while in the other these symptoms apparently were absent. The quantity of sugar in the urine progressively diminished in one case, taking place more rapidly during the first twenty-four days than during the succeeding six months. The urine in this case was found completely free from sugar seven months after operation. In the other case the percentage of sugar in the urine dropped during the first six hours after operation to one-half what it was before operation. The quantity rose again, however, within twenty-four hours, and remained stationary for a month, regardless of diet and therapy, then rapidly disappeared and was absent three months after operation. The age of both patients was 53 years, the one being six months and the other about three years beyond the onset of the menopause. There was no hereditary history of diabetes and the patients had been healthy preceding the described illness. It is to be particularly observed also that in both instances the cystoma was a pseudomucinous cyst-adenoma, unilateral and weighing 22 pounds in one, and bilateral and weighing 56½ pounds in the other.

It would seem from these facts, therefore, that there is at least strong evidence that the presence and growth of the multilocular pseudomucinous cyst-adenomata stood in the relationship of cause and effect and were not merely coincident.

The question at once arises, "In what way does the cause operate?" Before attempting to answer this question it is necessary that a study be made of the etiology, pathological anatomy, and chemistry of this form of cystic tumor and its contents, for through such a knowledge it may be possible to discover this relationship of cause and effect.

This variety of ovarian cystoma has for years been variously known as proliferating cystoma, multilocular oöphoronic glandular cystoma, cyst-adenoma or adeno-cystoma of the ovary, and more recently Pfannenstiel¹ has given it the name *Kyst-adenoma pseudomucinosum*. This is a cystic tumor of the ovary quite completely separable, by reason of its pathological anatomy and the chemistry of its contents, from other forms of cystic tumors of this organ. From the size of the growth, however, the parovarian cystoma, the papillary cystoma or cyst-adenoma, and dermoid cystoma are all capable of producing practically the same mechanical disturbances of other organs and structures in the abdominal cavity. The same degree of pressure and subjective symptoms may occur, though perhaps not as often, by these latter tumors.

They are growths developing from glandular epithelium and therefore from gland ducts. Formerly they were thought to originate in the embryonal duct-formed epithelial ingrowths of the ovary, known as the Valentin-Pflüger ducts. Newer investigations, however, have quite established the belief that the cystoma arises from new-formed epithelium—in the sense of Virchow, a heteroplastic growth—by an infolding of the proliferating ovarian epithelium into the neighboring stroma. Then, through the accumulation of secretion from the epithelium of such infoldings or ducts, the primary cyst is formed. The further proliferation and infolding of epithelium causes new ducts and thus the formation of new cysts. In this way is developed the adult multilocular pseudomucinous cyst-adenoma, a conglomeration of cysts of various sizes and shapes, which are separated one from the other by connective-tissue septa containing a rich supply of blood vessels. Usually there is a “chief cyst,” formed by a dilatation of a smaller cyst, or through confluence with other neighboring cysts, the confluence resulting from thinning and atrophy of the septa by internal pressure until rupture takes place.

The tumor is always richly supplied with blood vessels, which enter at the hilus, extend beneath the connective-tissue capsule, and enter the septa. The blood vessels increase in size and number with the growth of the tumor.

The wall of the chief cyst is often composed of three layers: the outer, pure connective tissue; a spongy central layer con-

¹ Archiv. f. Gyn., Bd. xxxvii.

taining the large blood vessels; and an inner cellular layer containing small blood vessels.

One cyst may be separated from the other merely by isolated blood vessels, the more resisting blood vessels remaining after the connective tissue has been destroyed.

Lymph vessels have been found in relation with the pedicle of the tumor. The inner surface of each loculus is covered with a single layer of cylindrical epithelial cells, which vary in form, depending on the size of the loculus and amount of internal pressure, being flattened out or absent in the very large loculi. From these cells mostly the cyst colloid contents is excreted.

This variety is the most frequent form of ovarian cyst observed and may reach a very large size (160 pounds, Olshausen). They are slow in growth, have a well-formed pedicle, are mostly unilateral, but may be bilateral and intraligamentous. They are benign growths, but are capable of infecting the peritoneum by implantation—the pseudomyxoma peritonei. The cyst contents is the so-called colloid material, which varies in consistence and character. It is a clear, tenacious, colloid mass in the small loculi (capable of being cut with the scissors), of the consistence of honey in the somewhat larger loculi, and rather a thin fluid in the largest or chief loculus. It may, however, be any grade of consistence between a tenacious colloid mass and the thin fluid in any and all sized loculi.

From a very careful and quite extensive study, Hammarsten¹ and later Pfannenstiel² determined that the material contained in the loculi of these cystomata was mostly, and sometimes wholly, composed of a peculiar mucoid substance secreted by the cylindrical epithelial cells lining the loculi. This substance was found to have many of the properties of mucin, but differed from mucin in that when treated with acetic acid it remained unchanged. Hammarsten therefore gave it the name "pseudomucin." He found that by boiling pseudomucin with a dilute solution of mineral acid a sugar was separated, which in turn was strongly reduced by an alkaline solution of the sulphate of copper. He states that pseudomucin belongs to the "so-called" glycoproteids and that analysis shows it to be N. and H. (?). The clear, tenacious masses of the smaller loculi

¹ Zeitschrift für phys. Chem., 1882.

² Archiv. für Gynäkologie, Bd. xxxviii, 1890.

were found to be pure pseudomucin, and the thin fluid of the larger loculi albumin, pseudomucin, etc.

Pfannenstiel further determined that there are various forms of pseudomucinous cyst-adenoma, and that the pseudomucin itself also varies.

The pseudomucin first described by Hammarsten is distinctly alkaline in reaction and has a specific gravity of 1.025. To this form Pfannenstiel gives the name pseudomucin A.

In a pseudomucinous cyst-adenoma where in all of the loculi, large and small, the material was of the same consistence, the walls delicate and easily torn, and where no chief cyst was present, he found a second variety of pseudomucin. The pseudomucin of this cystoma differed from pseudomucin A in that it was not soluble in water, the addition of water simply causing it to swell, and that it was a concentrated alkaline solution. He gave this the name pseudomucin B.

A third form he found in a pseudomucinous cyst-adenoma where the contents of the small and large loculi was a thin fluid. The pseudomucin here was weakly acid in reaction, exceedingly soluble in water, and contained a large amount of N. He named this pseudomucin Y.

Still more recently Mitjükoﬀ¹ has found in the colloid contents of a very large cystoma of the ovary a substance which he describes as paramucin. Paramucin, he states, is directly (without boiling with a dilute solution of mineral acid) reduced by Fehling's solution.

A further fact of importance regarding all pseudomucinous cyst-adenomata is that they may rupture and secondarily produce the disease known as pseudomyxoma peritonei. Forty cases of this disease have been described. Olshausen² and Pfannenstiel³ believe it to be a metastatic growth on the peritoneum. It has been shown that pseudomyxoma peritonei may first develop after the cyst has been removed by operation, and even though the cyst had not ruptured. It is probable in such cases that a portion of the cyst contents escaped into the peritoneal cavity during operation, and that the epithelium became attached, receiving nourishment from the peritoneum, and new masses of pseudomucin were formed. There is always an

¹ Archiv. für Gyn., Bd. xlix.

² "Die Krankheiten der Ovarien," 1886.

³ Veit: "Handbuch der Gynäkologie," Bd. iii., first half.

associated peritonitis, which is due to the presence of this foreign body—the *Fremdkörper-peritonitis* of the Germans.

In a case reported by Olshausen, forty pounds of such pseudomucin material were removed.

Since, in the only two cases observed where a cystic tumor of the ovary was associated with diabetes, the tumors were pseudomucinous cyst-adenomata, and must have contained the substance, a glycoproteid, which has been described by these two writers, the question arises, "Was this glycoproteid not in some way set free in these particular instances and excreted by the kidneys as sugar?" What would make plausible such a hypothesis is the fact that four forms of pseudomucinous cyst-adenoma have been described which vary in character of cyst walls, consistence of the contents of loculi, and probably also in secreting cells; further, that in these four forms of cystoma the mucoid substance varies in its physical and chemical characteristics, in solubility, reaction, and proportion of N. It would seem possible, therefore, that there may exist a fifth form of this cystoma, the walls and physical and chemical properties of the contents of which may allow absorption through channels to the kidneys, producing sugar in the urine and the symptoms of diabetes. The method, or methods, of absorption, and the channels through which such material could be carried to the kidneys and excreted as sugar, are difficult to understand. The most probable method is through the vascular system of the tumor, just as a metastasis takes place in malignant growths. It is shown in the description of the pathology of the walls and septa of the cystoma that the smaller blood vessels approach very near the internal lining of the loculus and are sometimes exposed. They might, therefore, directly take up this substance. Degenerative changes in the blood vessels may also in part explain such an occurrence.

Lymphatics have been found about the pedicle of the tumor and no doubt exist in the walls. Absorption and the necessary change of the mucoid substance might perhaps take place through the lymphatics.

The varying consistence of the fluid contents makes it possible that an exosmosis could have occurred, the material set free being of a character to be in some way changed and cause the formation and excretion of sugar by the kidneys.

The physical condition of the patient in these two instances may have had some influence in setting free and changing the pseudomucin, so that it was excreted by the kidneys as sugar.

How changes could take place in the pseudomucin set free as described in the above theories it is difficult to say, yet it seems to me not impossible that the necessary fermentative or chemical changes could occur. It would also seem plausible that the function of the pancreas or liver could be so disturbed by the continual presence of such a substance as to produce glycosuria.

Before any definite evidence can be gained to establish on the one hand, or prove false on the other, a direct relationship of cause and effect between the pseudomucin of these cystomata and glycosuria and diabetes, a certain amount of experimentation will be necessary. I regret that such experimentation was not carried out with the material from the cystoma I removed, but the reasons are apparent. At the first opportunity I have of procuring material from a cystoma of this character I shall inject it into the blood of dogs, administer it as food, etc., and look for changes in the urine. I am now making every effort to procure material from cases operated on by my friends, and, since this form of cyst is not rare, I am hopeful of soon being able to make the experiments.

Leaving, then, this question undecided, it is necessary to look further for other causes which may have operated in the production of the glycosuria in such a tumor.

A theory of importance is the mechanical interference with the glycolytic function of the pancreas or with the hepatic circulation. In this way Croom attempted to explain the cause of glycosuria in his case.

It is probable that if pressure be exerted on the pancreas directly, or on its vessels, sufficiently to interfere with the circulation in the gland and so to diminish or suppress the secretion of this glycolytic ferment, glycosuria will result. The vast majority of abdominal tumors are not complicated in this way. This, Croom believes, is to be explained by the elasticity of the abdominal walls allowing expansion in proportion to the growth of the tumor, so that the intra-abdominal tension is not increased in any direction. He says that provided the tumor is large, rapidly growing, solid or semi-solid, and there are thick, non-elastic abdominal walls, such as his case possessed, not only the general pressure may rise, but, on account of the

arrangement and strength of the recti muscles in front, the pressure antero-posterior may come to be greater than in any other direction. Thus the structures situated on the posterior abdominal wall, in the line of greatest pressure, might suffer much, while only a slightly increased pressure was being exerted on the diaphragm above or on the lateral abdominal walls. It is to be noted that in the case of Croom there was a sudden diminution of sugar, which occurred immediately after the operation; and he therefore believes, if the above theory were to explain the glycosuria, this would not have occurred, for considerable time would be necessary for the re-establishment of secretion and the sugar would have disappeared slowly and regularly. No such sudden change was noted in the case I report, though it may have occurred. Thus we cannot add evidence to this theory; nor do I believe the tumor in my case was of sufficient size to interfere with the glycolytic function of the pancreas, since it reached only to within three inches of the xiphoid cartilage.

It is known that hyperemia of the hepatic system will cause glycosuria. It is, however, extremely unlikely that a pelvic-abdominal tumor could interfere with the hepatic circulation. If this were the case, then most large abdominal tumors would cause sugar to appear in the urine.

I do not believe that it was probable in my case that there was pressure on the semilunar ganglion and that vasomotor dilatation and thus hepatic hyperemia resulted, though it is possible. The tumor did not reach sufficiently high to press on the semilunar ganglion. This, however, is the theory which Croom thought most plausible in his case. I think it can be fairly well assumed that these tumors did not cause glycosuria by mechanically interfering with the function of the pancreas or liver, directly or indirectly.

The question as to the association of neoplasms with diabetes I find has been somewhat investigated and must be considered. Tuffier¹ in 1888 collected 54 cases of diabetes mellitus associated with neoplasms; 36 were malignant tumors, 13 benign tumors, and in 5 it was unsettled as to whether the disease was malignant or benign. Of the 36 malignant 22 were carcinoma, 9 epithelioma, 3 osteosarcoma, and 2 lymphosarcoma. Among these cases 1 was a carcinoma of the uterus and 3 were ovarian cysts. Two of the cases where an ovarian cyst was

¹ Archiv. générales de Médecine, August-September, 1888.

present he describes, and to the third he simply refers. The cysts were not removed by operation nor was their character described. Tuffier concludes from his study of these 54 cases that all tumors, from lipoma to encephaloid carcinoma, and without predomination of any one form, may be associated with diabetes. He believes that diabetes has no influence on the tumor and that the association is simply coincident. Naunyn, among 400 cases, saw 6 with carcinoma of the liver, 1 with epithelioma of the cheek, and 1 with carcinoma of the stomach.

These studies of Tuffier¹ and observations of Naunyn² would seem to substantiate the belief that diabetes cannot be produced by the mechanical or pathological influences of tumors in general, yet in none of the cases Tuffier collected or Naunyn observed was operation performed, the tumor removed, and the patient's health restored. Furthermore, his paper does not show a careful study of the subject. His observations did not warrant such a study, and therefore his opinions do not prove that the relationship of cause and effect may not exist, at least in the special form of tumor we describe.

A case reported by Imlach³ has a direct bearing on this subject and makes the problem even more difficult, since the association of a large quantity of sugar in the urine and symptoms of diabetes with another form of gynecological disease—pyosalpinx—was followed, after the removal of the disease, by disappearance of the glycosuria and complete recovery, as in the cases above reported. The patient was a widow, age 31 years, the mother of one child, who came to him suffering with chronic pyosalpinx. She complained of insatiable thirst and sleeplessness, which she had had for a month. She passed a large quantity of urine, of which the specific gravity was 1036. It contained no albumin, but sugar was found. The usual diabetic treatment failed to cause any improvement. Two months after coming under observation there were 2,560 grains of sugar in the urine passed in the twenty-four hours, a month later 1,200 grains. The uterine appendages were removed. Both tubes were found filled with pus, strongly adherent, and chronically inflamed. All symptoms of diabetes rapidly disappeared after operation, and a month later she was well, there was no sugar in the urine, and she was taking the

¹ Ibid.

² Ibid.

³ British Medical Journal, July 11, 1885.

ordinary diet. He believed the pyosalpinx to be chronic, but the diabetes of recent date. The object of the operation, he states, was the induction of the menopause, with the hope that the acute diabetes would become chronic. He does not attempt to explain the relationship of cause and effect.

Here pyosalpinx was associated with glycosuria and diabetic symptoms, and the patient was completely cured by removing both tubes and ovaries. The cure was complete at the end of a month, therefore in even a shorter time than in the cases previously described. This would influence one against the belief regarding the absorption of pseudomucin or the mechanical disturbance of the glycolytic function of the pancreas or function of the liver. It would rather point out that the induction of the climacterium had something to do with the cure. Some evidence to assist in the belief that the climacterium has a decided influence on some cases of diabetes mellitus is to be found in the literature.

Lawson Tait¹ and Lecorche² refer to a climacteric diabetes which appears at or about the climacterium and has a natural termination in cure within two or three years. Tait reports 4 such cases. The patients were 49, 45, 40, and 47 years of age. They had the characteristic symptoms of diabetes, with a large amount of sugar in the urine. The sugar disappeared as follows: after one and a half months, after five months, after one year, and after two years. In two of the cases the diabetes was present before the climacterium, and improvement only took place after the climacterium. In two other cases the sugar and diabetic symptoms failed to disappear, even though the patients were well beyond the climacterium, sugar being found in the urine when they were last seen.

According to Lecorche, diabetes occurs unusually frequently at the time of the climacterium. He believes there is a special form of diabetes in women at the menstrual period, which runs a certain definite course, extending over some years, and terminates in recovery. All cases have given him the impression that the termination in cure was a natural one. Frerichs³ believes that women at the climacteric period, especially when stout, are liable to suffer from diabetes. This, however, is not

¹ The Practitioner, London and New York, June, 1886.

² *Annales de Gynécologie*, October, 1885.

³ Williamson: "Diabetes Mellitus and its Treatment," 1893.

the experience of Naunyn¹ and Dickinson. From the statistics of Grube, Seegen, Pavy, and Frerichs² it would appear that diabetes is more frequent at the time of the climacterium, between 45 and 55 years of age.

Williamson³ states that in the milder forms of diabetes, occurring about the climacteric period, recovery sometimes takes place.

It is possible, therefore, that all three patients described had this climacteric diabetes. The first two patients were 53 years of age and in or about the climacteric period. One can appreciate how the cystoma in these two cases kept up sufficient irritation to prevent the completion of the climacteric changes and thus not allow the cure of the diabetes. The disease being an ovarian growth, too, may have assisted to prevent the changes which would otherwise have taken place. Still another cause for the continuance of the diabetes in the first two cases was the general poor health of the patients, caused by the presence of the large cystic tumors. After the removal of the tumor in such a case there would be a natural improvement of the general health, which would stimulate the functions of the pancreas and liver and might explain the rapid disappearance of the glycosuria. It might be, too, that the glycosuria was only present with the reduced physical condition of the patient, that it diminished and disappeared with the improvement of the general health. Naunyn⁴ writes that in cases of diabetes where there is a complicating disease, the latter is relieved, and when the patient's nourishment is much improved the glycosuria may disappear. Such cases have been observed.

If it is to be granted that the induction of the climacterium or completion of the climacteric change *per se*, with, perhaps, the improvement of the general health, caused the glycosuria and diabetic symptoms to disappear in these three cases and in those described by Tait and Lecorche, then the question arises, "How does this change act?" Our meagre knowledge of this physiological process does not allow us to give much more than hypothetical reasoning on the question. We know that at the climacterium there takes place an atrophy of the genital organs. They become converted into a fibrous tissue and

¹ Nothnagel: "Specielle Pathologie und Therapie," Bd. vi., 1898.

² Williamson: "Diabetes Mellitus and its Treatment," 1898.

³ Ibid.

⁴ Ibid.

quite completely lose their functions. Furthermore, there is a systemic change which seems to affect chiefly the vasomotor system. The climacteric period is a pronounced physiological process, continuing from a few months to three or four years. Women at this time enter what may be called the "senile habitat."

We know that many cases of diabetes are not affected by the climacterium, and thus that it cannot in itself cure diabetes. Furthermore, since this last is true, and also because atrophic changes have been found in the genitals due to diabetes, we must conclude that, in those cases where the climacteric change does seem to favorably influence and cure the diabetes, there must have been some pre-existing disease, abnormal function or secretion of the internal genital organs, producing diabetes, and such disease would necessarily be affected, and perhaps entirely removed, by the climacteric atrophic changes. It is, therefore, still suggested that there may be some relationship of cause and effect between certain diseased or functional conditions of these organs and certain cases of diabetes.

Except the presence of pruritus, probably secondary to the diabetes, Tait does not mention that there was a genital disease present in his cases, yet in the cases of Croom, Imlach, and my own there was pronounced disease, and from the history and course of the cases it is reasonable to conclude that the disease had something to do with the production of the diabetes.

The fact that in two cases there was a pseudomucinous cyst-adenoma of the ovary, and in the other a pyosalpinx, would lead to the belief that if diabetes can be produced by a gynecological disease it is produced by more than one form of disease; also, since the vast majority of the diseases of the female pelvic organs, including pseudomucinous cyst-adenoma and pyosalpinx, are not associated with glycosuria, that there must be, in order to produce the glycosuria, some special associated pathological condition of these organs, other organs or tissues, abnormal secretion, or some condition of the health which would favor the production of glycosuria. If there be a pathological condition of the genital organs associated with diabetes, and it is demonstrable macroscopically, or even microscopically, it has not been observed. There has been no reason to look for such changes, and in this way its presence would be overlooked or considered to be of no importance.

The case reported by Isreal,¹ however, is, I think, in this sense of sufficient worth to be referred to. The patient was 37 years of age and died of diabetic coma. There was evidence of constitutional syphilis (presumably syphilis of the liver and kidneys). Both ovaries were found necrotic, converted into fluctuating sacs the size of a walnut and hen's egg. The uterus was normal. The tubes were normal, except that the fimbriated ends were swollen and the vessels filled by being in contact with the necrotic ovaries. He did not believe the necrosis of the ovaries to be due to syphilis, but surmised that there was a pre-existing chronic oöphoritis which progressed to necrosis under the favorable influence of the diabetic disease. There was, therefore, no very logical reasoning in this instance that a chronic oöphoritis was influenced to necrosis by the diabetic disease. Further, since we find in the literature that all cases of necrosis of the ovaries observed, except this one of Isreal's, have been due either to severe wound infection or to torsion of the ovarian pedicle, which completely shut off the blood supply to the ovary, this case is unique, and there is strong cause for doubt that Isreal's explanation, accepted by Naunyn, is the correct one. To my mind it is quite as probable that the necrosis or pre-existing disease of the ovaries was a diabetic lesion similar to the necrosis of the pancreas which has been observed under the same conditions. I would therefore be inclined to add this as a fourth case where there was a seeming etiological relation between diabetes and disease of the female internal genital tract.

From this study of the literature and the history and course of the cases described, it would seem quite warrantable to make the following deductions:

1. That in rare instances where disease of the female internal genital organs is associated with diabetic symptoms and a large quantity of sugar is found in the urine, the diabetic symptoms and sugar in the urine seem to be dependent on the disease of the genital organs (Cases 1 and 3).

2. That in other cases the excretion of a large amount of sugar by the kidneys without diabetic symptoms seems to be dependent also on the disease of the female internal genital organs (Case 2).

3. Since, in every case of any class or classes of disease of the female internal genital organs, no such association has been

¹ Virchow's Archiv., Bd. lxxxiii., 1881.

observed, it is probable that in order to produce the diabetic symptoms, and excretion of sugar by the kidneys, there may be present, in addition to the disease of the genital organs which we are able to recognize, some special and separate lesions or abnormal secretions of the genital organs, or some affection of other organs, or some special predisposing condition of the body.

4. That such cases of diabetes as are here described, and those cases to which Tait and Lecorche have given the name "climacteric diabetes," may be cured by the induction of the climacterium, the removal of gross disease which allows the completion of the climacteric change, or by the progress of the normal climacterium.

Finally, I would say that the subject of association of disease of the female internal genital organs with glycosuria and diabetes is worthy of serious consideration, and that there is sufficient evidence of an etiological relationship between the two diseases to stimulate careful observation of cases of this class and experimentation aiming to determine the question of cause and effect.

LARGE PAROVARIAN CYST ASSOCIATED WITH A LARGE OVARIAN CYST OF THE SAME SIDE—TWISTED PEDICLE.

BY

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(With plate and illustration.)

THE frequent occurrence of cysts arising from the parovarium has been noted by various writers, but from a casual review of the literature I have been unable to note any case in which an unusually large cyst was associated with a large ovarian cyst of either the same or opposite side. In consequence of this fact I have been prompted to report the case in order to bring out its several points of clinical interest. In the gynecological clinic of the Johns Hopkins Hospital the percentage of parovarian cysts to that of cysts of the ovary is smaller than that given by some of the European investigators. Olshausen

found that 11.3 per cent were parovarian in origin; Fritsch, 11.8 per cent; and Schauta, 9.1 per cent. In Dr. Kelly's clinic, out of 169 cystectomies, 16 were for cysts of the parovarium, 146 for ovarian cysts, and 7 for cysts developing between the layers of the broad ligament, but not, however, parovarian in origin, thus making a percentage of 9. In this average the so-called cystic ovaries were not included. In 4 of the 16 cases double cysts were present; in one case, hospital number 2616, there was a cyst of the left parovarium and one of the right ovary; while in another case, No. 3927, the same pathological conditions existed, only the positions were reversed—namely, there was a cyst of the right parovarium and one of the left ovary. The third case, No. 6063, was one of a parovarian cyst on each side. Case 4, No. 2774, or the case in question, was a large parovarian cyst of the left side associated with a large cyst of the ovary of the same side.

The patient, A. C., was single, white, age 38, and admitted September 12, 1899, complaining of pain in the back and of marked abdominal enlargement. She was well nourished, of large build and clear expression. Her previous history was unimportant. The menstrual history was normal up to seven years ago, and there had been no leucorrhœal discharge up to that time. In June, 1894, she first noticed decided abdominal fulness, but for two or three years previous to this there was an increased frequency in menstruation, the flow coming on every two to three weeks, increased in quantity and accompanied by pain. The patient first noticed a lump, the size of a baseball, situated about the middle of the abdomen. This slowly increased in size and apparently moved over to the right side. The abdomen gradually and uniformly increased in size until a year ago, since which time there does not appear to have been any further enlargement.

The abdomen is dome-shaped and gives a distinct wave of fluctuation. The plane of declivity from the umbilicus to the ensiform cartilage is exceedingly abrupt, while from the umbilicus to the pelvis it is very gradual. On percussion, dulness is elicited throughout the entire abdomen and is found extending low down in either flank. The skin surface is smooth and glides readily over the very indefinite tumor. There is marked edema of the external genitals, the hymen is puffed out between the labia, and there is a bluish discoloration of the vaginal mucosa with an absence of the rugæ. The cervix is in

the axis of the vagina and lies just within the outlet. It points directly downward; the os is patulous. The body of the uterus is indistinctly outlined. Both fornices and the cul-de-sac are entirely obliterated by a cystic tumor. This tumor does not seem to have any direct connection with the mass lying above the brim of the pelvis. It is firmly fixed, while the tumor detected by abdominal examination is mobile, though through a very limited excursus.

Operation.—Cystectomy. On making a median abdominal incision I found the peritoneum normal, and immediately beneath a clear, transparent, tense sac of a slightly greenish hue was seen. This lay above the brim of the pelvis, was freely movable, and evidently sprang from the left side of the pelvic cavity. The tumor mass was the size of a man's head and pushed the fundus forward and downward against the symphysis. The body of the uterus was normal in size, deflected slightly to the left, and rested in a sulcus or depression between the abdominal mass and a second mass situated in the pelvis. The left Fallopian tube passed out over, and was densely adherent to, the anterior surface of the cyst. Several large vessels, tremendously dilated, ran up from the pedicle and over the anterior surface of the cyst. These formed tense bands, which had not yielded as the cyst wall in other portions had, so that at first glance the sac appeared to be made up of several bosses. The cyst was punctured and the fluid drawn off, followed by immediate collapse of the cyst wall. It was, however, impossible to draw it from the abdominal cavity, as it was firmly held by its pedicle. The pedicle was twisted through one complete revolution from left to right, and was seemingly attached to the upper pole of the ovary, which connected it with the second mass low in the pelvis. At first glance the entire pedicle seemed to be the ovary, flattened out and situated to the outer side. After lengthening the abdominal incision a second cystic mass was found wedged in and completely filling the pelvis. This was not one-quarter as large as the abdominal tumor. It was free from adhesions, but offered much resistance in delivering, on account of its being so firmly wedged in the pelvis. Finally it was revolved and delivered intact. The cysts were tied off near the uterine cornu.

Gross Appearances.—The walls of the upper cyst were exceedingly thin, transparent, and composed of two distinct layers which glided smoothly over one another. The outer

could be very easily stripped off from the exceedingly thin under layer. Two distinct and separate sets of vessels were seen, the one independent of the other and recrossing it in many

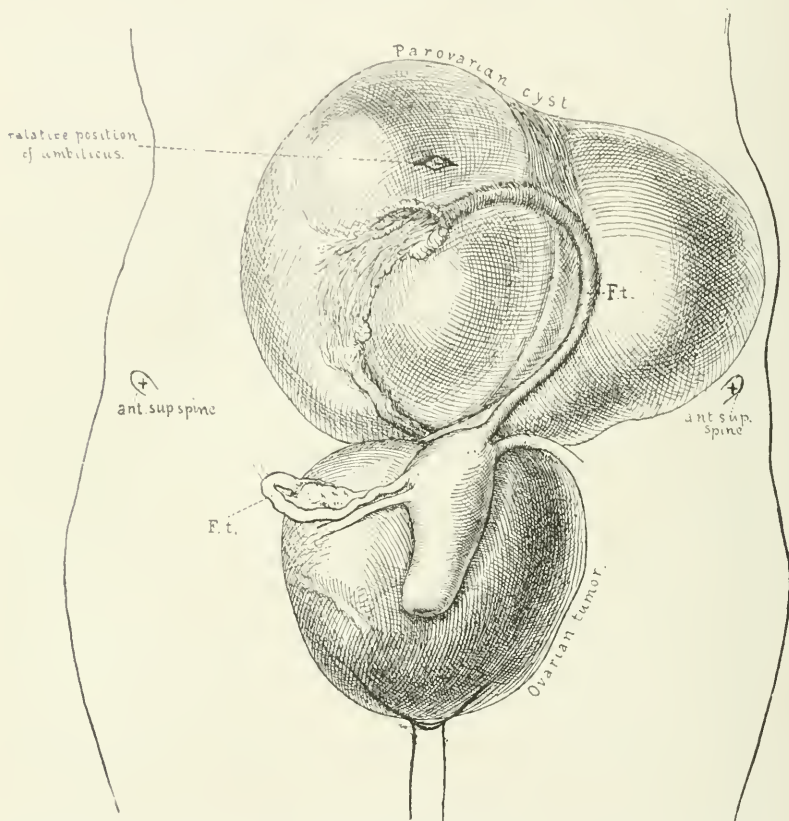
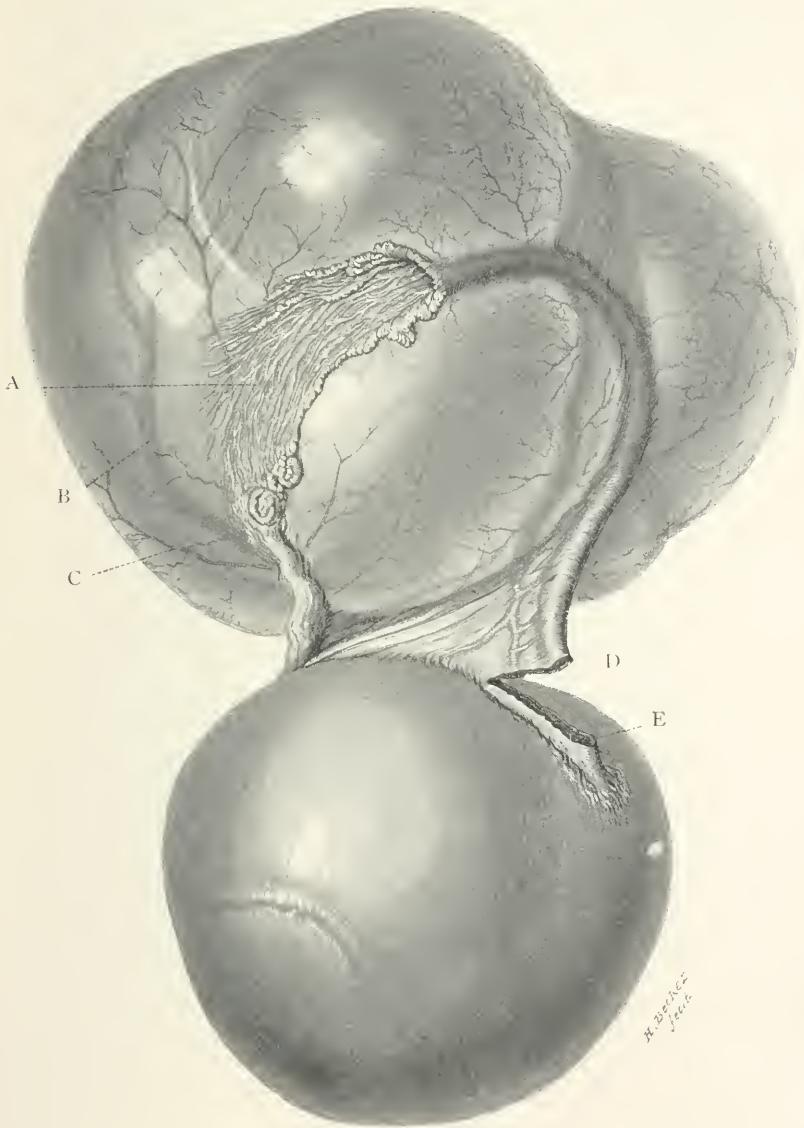


FIG. 1.—Outline drawing showing the relative position of the uterus and tubes to the cysts.

places. The outer surface of the cyst was smooth and glistening and free from adhesions; the inner for the most part

DESCRIPTION OF PLATE—*Ovarian and parovarian cysts of the same side.* Occupying the upper part of the field is a large, partially lobulated, and translucent cyst. Its walls are very thin, and coursing over its surface are many branching blood vessels situated in the peritoneum, while in the depth are the hazy outlines of other vessels which belong to the connective-tissue walls of the cyst. The lobulated appearance of the cyst is due to thickened and unyielding portions of the wall, as the cyst contains but one cavity. The Fallopian tube is much lengthened out, and the fimbriae markedly stretched over the surface of the cyst. The lower cyst is ovarian in origin, is unilocular, and its walls are much thicker than are those of the one just described. A, fimbriated end of tube; B, vessel in cyst wall; C, peritoneal vessels; D, uterine end of the tube; E, broad-ligament attachment.



STOKES.—PAROVARIAN CYST ASSOCIATED WITH OVARIAN
CYST OF THE SAME SIDE.

smooth, but here and there gathered up into folds. The tube lay stretched out as a ridge over the anterior surface of the cyst; was 14 centimetres in length, slightly enlarged in calibre, and intimately attached for its entire length. At the junction of the outer and middle third it curved sharply backward upon itself, and the fimbriæ were spread out in a fan-like fashion and intimately attached to the cyst wall (see plate). This cyst contained five litres of a clear, transparent alkaline fluid of a specific gravity of about 1006.

The pelvic or ovarian cyst sprang directly from the lower pole of the connecting bridge of tissue between the two cysts. It was composed of a single sac, the walls of which were opaque, while those of the first sac were thin and translucent. The fluid of this second cyst was not examined, as the sac was not opened until the specimen had been in the preserving fluid for several weeks. The bridge of tissue connecting the two cysts resembled in form a flattened and thinned-out ovary. It was 5 by 2.5 centimetres in diameter.

Histological Examination.—Sections from the wall of the pelvic tumor showed that the outer portions consisted of fibrous tissue and in a few places contained distinct areas of ovarian stroma. The inner surface was smooth and lined by one layer of high, non-ciliated cylindrical epithelium having small, deeply staining nuclei situated at the base of the cell. The protoplasm was transparent, almost colorless, or took only a faint bluish-pink color with hematoxylin and eosin. This growth was a simple unilocular cyst of the ovary.

The outer portions of the larger cyst wall consisted of fibrillated tissue. It had a very rich blood supply, but contained no trace of any ovarian stroma. Its inner surface differed materially from that of the pelvic cyst, in that it was lined with a single layer of low cylindrical, ciliated epithelium. The nuclei were large, vesicular, and situated near the centre of the cell.

The convalescence of the patient was uninterrupted. She was discharged on the twenty-fifth day feeling "well."

From the situation of the upper cyst, together with the histological picture, it is certain that it was of parovarian origin.

SALISBURY, N. C

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VAGINAL HYSTERECTOMY FOR SMALL BLEEDING UTERINE MYOMATA.¹

BY

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It may be stated at the outset that uterine fibromata, when small and not troublesome, should be let alone. It is very common to find nodules of this character, during routine examinations, which give no trouble whatever. These do not call for interference and are not here under discussion. That the small myomata of two or more inches in diameter, or even less, may prove exceedingly troublesome from hemorrhage cannot be denied. The menstrual periods may not only be too profuse, but the flow may continue for ten, fifteen, or even the entire twenty-eight days, as in several cases observed.

Examples of this type.—M., age 37, single. Gradual increase of bleeding for ten years. Now duration seven days; very severe three days; twelve to fourteen large napkins saturated per day. A recent sharp hemorrhage caused fainting. Has required stay in bed. Hemoglobin, 42 per cent. Gradual loss

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, December 21, 1899.

of stamina, partly recovered between periods, forces patient to seek relief. Single hard fibroma, 3 inches in diameter, exposed in endometrium for only three-quarters of an inch in anterior wall of uterus. Complete cure by hysterectomy. The situation of growth made no less radical operation possible.

B., age 42. Seven years ago bled every day for eighteen months, then decreased; past two years, bleeds nearly thirty days out of every month. Has completely broken down in health, owing to the constant hemorrhage, which is gradually increasing. The uterus contains several small nodules, of which the only one bleeding was two inches in diameter. Complete cure by hysterectomy, and restoration of general health.

A more or less constant drain of blood may be withstood during early womanhood by persons of vigorous type, but if the flow exceeds the blood-making capacity, or when the general powers fail from advancing age, the drain tells. Besides the symptoms due to anemia directly, such as palpitation, tinnitus, and shortness of breath, lesions of internal organs, such as the kidney, are favored, while from general lowering of nutrition existing gastric, pulmonary, and nerve disorders are apt to grow worse.

When conditions such as these confront the surgeon they demand relief. The fact that the tumor is small does not justify temporizing measures, if they fail after a fair trial to check the hemorrhage sufficiently to enable the system to recuperate. If a life is wrecked, the size of the growth which wrecks it cuts very little figure as a contraindication to operation. Available remedies are : medication, curetting, temporary relief by electricity, ligation of vessels per vaginam, removal of ovaries, abdominal hysterectomy, abdominal enucleation, vaginal enucleation, vaginal hysterectomy. Most cases which come to the gynecologist have taken medicine from both schools of practice, many have taken also proprietary medicines, and frequently they have had electricity and much local treatment from physicians who do not practise surgery. From the history of uniform failure the gynecologist is discouraged from a resort to further medication. Electricity may temporarily stop bleeding. I have known it to fail absolutely after the fullest trial in skilful hands. It is astonishing how persistent and annoying this bleeding from small intramural growths may be. A patient, age 38, married fifteen years, sterile and anxious for

pregnancy, was sent to me by her physician, a very intelligent and capable man, who had exhausted the list of drugs without effect. Her growth was quite small and comparatively low in the front uterine wall, but it bled almost daily. She would flow constantly for thirty or sixty days at times. She absolutely refused to assume the remotest operative risk, but curetting was tried without any effect, likewise ligation from the vagina of the lateral vessels. Enucleation would have involved splitting the uterus partially, and, not being without risk, was declined. No treatment tried did any good, but she gradually improved. The case was suitable for vaginal myomectomy without sacrifice of the uterus.

Among operative procedures curetting seems the simplest. It may do good, but most frequently the mass found bulging from one of the uterine walls has so flattened out and curved the uterine canal that it has become a mere slit passing a third or half way around a spherical tumor, and no curette can reach any considerable extent of endometrium, to say nothing of mechanical or septic dangers from the attempt. Ligation of the uterine arteries in the vagina may be tried; it has been successful, and, where the parts are accessible, has little danger. For removal of the ovaries the writer feels that there is very little field. They are frequently flattened out or buried. When the tumor invades the broad ligament there may be insufficient ovarian pedicle to secure against hemorrhage; the abdomen is necessarily opened; sterility is caused; the cure is not certain; the risk is not appreciably less than that of one of the various forms of hysterectomy, which, while open to some of the same disadvantages, surely will cure. Abdominal enucleation or myomectomy has some field. Its chief claim is to render maternity possible in those not near the menopause, and to preserve the menstrual function in the young woman. It is out of place where there are many nodules, as numerous small foci for future growth are necessarily overlooked, and also when the patient is at or near the menopause.

Abdominal hysterectomy will always be the best and safest operation for tumors reaching out of the true pelvis, for those which are distinctly intraligamentary and displace the ureters, for cases which have had appendicitis or localized peritonitis, or where there is any reason to suspect suppurative disease of the adnexa or extensive intestinal adhesions. It is possible for

an expert in vaginal work to overcome many of these difficulties, but a reasonable familiarity with both methods of operating has led the writer to adopt the position stated.

Vaginal enucleation of the tumor by morcellation is an operation well known to operators for several years. Though many deaths from sepsis and from exhausting hemorrhage have appeared in the literature of the past, it is an operation which should always be considered in the case of small tumors which present prominently into the uterine cavity. Unlike hysterectomy, it is open to the objection of requiring manipulations which cannot be guarded by a finger introduced on the peritoneal side of the danger points. When the presenting mass proves to be part of an irregular tumor involving the whole uterine wall and presenting irregularly under the peritoneum, the dangers of hemorrhage and sepsis from perforation are increased. It is only well adapted to uncomplicated conditions.

There remains for consideration the operation of vaginal hysterectomy. It must be presupposed that the severity and long continuance of the hemorrhage justify any mutilating operation, and that morcellation of the tumor itself is not feasible. It is very desirable that the uterus and tumor be not tightly locked in the pelvis by adhesions or by its relation to the broad ligaments. There is nothing so trying to the vaginal operator as to work through a small vagina upon a uterus which cannot be drawn down far enough for ligation of the lower lateral blood supply or for the proper stripping of the bladder in front. Where the cervix is drawn up, or nearly obliterated by surrounding masses so that it cannot be drawn down at all, the operation had better be done from above. If the lower portion of the uterus is accessible, so that a proper start can be made, the size of the fundus makes less relative difficulty, as it can be so reduced by morcellation that it will finally come out as a mere collapsed shell, as will presently be described.

The technique does not differ, in all the earlier stages, from that practised for carcinoma, except that no effort to curette, irrigate, or close the uterine cavity need ordinarily be made. The patient has been shaved and the parts scrubbed as well as possible the day before operation, iodoform gauze lying in the vagina over night. Except in the case of very timid patients, this is done previously so as to shorten the time under ether.

Final scrubbing with green soap and washing with bichloride of mercury having been accomplished, the usual incisions are made in front of and behind the cervix, the bladder and ureters laid off, the peritoneum opened, and the protecting gauze introduced into the abdomen behind the growth. Two silk ligatures are now introduced on each side with a blunt needle. The second ligature catches the uterine artery. The tissues are cut along the uterine side of these ligatures as high as the ligation of the blood supply will allow. At this point begin the procedures which make possible the enucleation of the mass which is too large to be delivered through the vaginal incision. They consist of strong traction, bisection of the uterus from before backward, and morcellation by cutting out pieces from the centre of the mass as it presents. It is astonishing how traction controls the bleeding. The uterus may be thus reduced to a shell by grasping firmly a piece of presenting tissue, dragging down and cutting it out. As soon as the uterine mass is thus sufficiently brought down and reduced in size, the finger may be passed completely above it, the bisecting completed, and the operation ended by either tying off or clamping the remainder of the broad ligament on either side. It is the writer's custom to use the Péan clamp for the upper portion of the broad ligament, having secured the lower blood supply with silk ligatures. The advantages of this combination of methods are that the larger arteries are secured by ligature, the safer way; more room is left for subsequent procedures than when clamps are used low down. These ligatures are low and are easily removed afterward, so that it is possible to use silk, which is the safest mass ligature material. Mass ligatures here shorten the scar from above down and give better subsequent position to the upper vagina, lessening the tendency to vaginal descent. A very large amount of the ease and readiness with which a fibroid growth may be dragged upon and morcellated will depend upon the use of proper forceps for grasping tissue. It might be thought *a priori* that any strong volsella forceps would answer this purpose, but it is not so. The writer has tried strong double tenacula of various types in use for other purposes, but finds that all long round points tear out too easily. The forceps here described, however, answers the purpose admirably and leaves nothing to be desired. It is a copy made of forceps used by Landau, of Berlin. Who the originator is I do not know.

Essentially, however, it is a modification of a very old style used in general surgery and known as lion-jaw forceps. There are four strong, short, square canine teeth, two in each jaw, which act in principle like those of any volsella, but between them the strong flat material of the instrument takes a crushing or pinching hold upon a mass of tissue, which is prevented from slipping away by the teeth. This gives a much stronger hold than can be obtained with any tenaculum or volsella which depends upon teeth alone. When this instrument is thrust against a flat, perpendicular wall of tissue of the consistence of fibromatous structure, it will take a bite which will hold and will allow of traction. Most forms of volsella will not do this. Three or four pairs used successively are extremely useful, and make all the difference between an annoying insecurity with much oozing, and perfect control with very little bleeding. The rectangular biting end when closed is three-eighths by one-quarter of an inch in dimensions. The strong, square teeth are one-eighth of an inch long. The whole length is nine and a half inches. The catch at the handle has nine notches.

Up till two years ago the writer used silk ligatures entirely in vaginal hysterectomy, owing to their great security. The long period before the higher ones could be brought away led, however, to the adoption of the combination of ligatures below and clamps above, as previously stated. The only dressing is a strip of iodoform gauze several yards in length, packed in so as to reach above the clamp points and so as to completely fill the vagina. The lower portion of this is removed on the fourth day and the remainder on the seventh day, to be replaced by a much lighter packing, changed at intervals up to the end of the second week. The clamps are gently loosened and drawn out, without disturbing the packing, at the end of the first forty-eight hours. The bowels are moved daily after the second day. Douching should be avoided altogether up till the end of the second week, unless it can be given by the surgeon himself, with the patient in the lithotomy position and over a Sims speculum, used to secure absolute freedom of outflow. This is done by the writer on the seventh day as a routine, and need not be repeated for several days. There is, however, more or less odor after the first week or ten days, unless the gauze is changed and a douche given every second or third day. This odor is due to

the death of the stumps which were clamped, as well as of certain sheets of peritoneum, apparently broad ligament, which have had their blood supply cut off. This condition does no harm and may be neglected. A certain amount of this tissue necrosis appears to extend into these thin layers of tissue beyond the clamps. In nearly every case operated upon does it occur, but general sepsis has never occurred and no death has resulted. On one occasion during a dressing, while testing the hold of a high ligature, the writer was alarmed by the coming away of a dead blood vessel quite two inches in length and of the size of an ovarian artery. Its walls were gray and evidently dead. Clotting had extended beyond the point of separation and not the slightest bleeding occurred, but ligatures have been pulled more gently ever since! The convalescence of patients is usually rather smoother than after abdominal section above the pubis. The patient is more comfortable, looks and eats better on the average, but is more apt to have a temperature reaching nearly to 101° in the first week, probably owing to the tissue necrosis referred to. While it is not very common to have the pulse never reach 90 after an abdominal hysterectomy in my hands, it is not at all unusual after a vaginal hysterectomy. Nature has evidently provided for great traumatism about the inferior strait of the pelvis without causing heart, respiratory, and vasomotor reflexes. The normal parturition is thus provided for. The mortality, in the hands of those accustomed to vaginal hysterectomy and who work carefully, is undoubtedly very low. It may be stated as about two per cent in any series including some hundreds of cases for all causes. The mortality in the writer's hands is so far *nil*, including all cases of vaginal hysterectomy performed for any cause, but this must be considered as to some extent accidental. In a sufficiently large group of cases the mortality would doubtless be at least two per cent. A typical case is the following:

M. T., age 52, residence Central New York; two children, the last thirty years ago; a single miscarriage soon after. In early life her menstrual periods were regular, lasting three or four days, but always profuse and painful. Now follows the old story, so frequently heard from women with fibroid tumors: the *menopause did not appear*, and when the patient was 50 years old the quantity greatly increased, and the flow, instead of lasting three or four days, lasted eight or ten. This continued a year and a half, *i.e.*, up to the time of observation,

when she was sent to me by her physician on account of broken health due to hemorrhage. The feet and legs had swelled toward night for a year. More than a year ago there began a series of attacks referred to the heart and characterized by pallor, sense of grasping in the precordium, gasping for breath, weakness and faintness. For many months she had been obliged to sit down to recover breath when half-way up a flight of stairs. Sudden exertion brought on a sensation described as like a hand grasping what was inside her left chest. She appeared anemic, and the hemoglobin estimation was 39 per cent. The red blood corpuscles numbered 4,700,000. The pulse was weak and at times irregular. Rapid loss of flesh in the previous six months. No kidney or heart disease could be demonstrated. The dyspnea, swelling of feet, etc., were therefore attributed to the anemia from hemorrhage. Examination showed a very hard, somewhat irregular fibroid mass in Douglas' cul-de-sac, evidently uterine and rather too large to be delivered easily through the vagina. The cervix was deeply lacerated and had much scar tissue in the angles. Owing to the low hemoglobin, 39 per cent, it was thought unwise to operate without previous treatment. Under massage, rest in bed, and the administration of peptonates of iron and manganese, the general strength was increased and the hemoglobin brought to 45 per cent in three weeks. Just before the next menstrual period began operation was performed. After ligation of the lower blood supply with silk at the sides of the vagina, the uterus was bisected as far up as possible and the uterine mass cut away in pieces from below. Numerous small, round fibroid nodules were brought out, the largest being two inches in diameter. The bisecting being completed, the broad ligaments were clamped off and the usual toilet made. There were no complications in the recovery, and the patient was seen a month after her discharge from the hospital, rapidly regaining her former health, and then far better than before operation. All sense of precordial distress on exertion had gone.

A woman, age 50, who had borne nine children and had had two miscarriages, applied because of increasing pelvic distress and excessive bleeding. Periods last seven to fourteen days and recur at two weeks' interval. Quantity very great. Had suffered twelve years. Swelling of hands and feet, dizziness, etc., probably caused by anemia. Offensive discharge one year. Loss of weight, twenty-five pounds. Uterine canal measures four inches. Symmetrical enlargement of uterus.

Vaginal hysterectomy. Fibroma of uterus. Well four years later.

X., age 47, suffered severely from hemorrhage, pelvic distress, and discharge. A large uterus with its tubes and ovaries was firmly fixed below the sacral promontory. Fibroid degeneration of the uterine walls, which were more than an inch in thickness. Endometrium covered with abundant soft adenomatous fringes. The left tube in the cul-de-sac distended with white, inspissated pus of the exact consistence of cream cheese. Vaginal hysterectomy after bisection and morcellation. Troublesome enucleation of whole of cheesy tube. Normal right tube and ovary left behind to lessen severity of menopause symptoms. Recovery without complications; cure.

These cases serve as examples and illustrate the method of removal where the whole mass is entirely too large for vaginal delivery unless first cut in pieces.

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REMOVAL OF BOTH UTERINE APPENDAGES DURING PREGNANCY.¹

BY

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ARNOTT¹ and Burd,² in 1847, were probably the first to report abdominal operations on the uterine appendages during pregnancy. Since that time such cases have been published by hundreds, and to-day one can scarcely find a progressive abdominal surgeon who considers pregnancy a contraindication to such necessary operations on any other organ than the uterus. This is the natural outgrowth of ripe experience in such work.

Many cases have been reported in which an ovarian cyst has been removed and years later a second ovariectomy complicated by pregnancy has been successfully done. Such cases, however, do not belong to the class to be considered in this paper, inasmuch as but one appendage was removed during pregnancy.

¹ Read at a meeting of the Medical and Surgical Society of the District of Columbia, January 4, 1900.

These single operations were done for forty years before J. Knowsley Thornton,⁵ on February 4, 1885, did double ablation of the appendages, in the fourth month of pregnancy, for double dermoid cysts of the ovaries. The right one was in front of and above the uterus, and its pedicle was twisted once around; the other tumor lay behind the uterus and extended to the bottom of Douglas' pouch. At the end of the eighth month of gestation labor came on rapidly without previous warning, and the child was born before the doctor arrived. The placenta was soon expelled, and the child was breast-nursed. According to my researches, this was the first case of removal of both uterine appendages during pregnancy. The operation was next done, on this continent, in 1887 by Mundé, of New York; Gardner,⁶ of Montreal; and Montgomery,⁶ of Philadelphia. The following year Potter,⁷ of Buffalo; Nelson,⁸ of Chicago; and Sylvester,⁹ of Boston, performed the operation each once. Since that time the number of operations has increased to 38, including my own.

Indications.—Of these 38 cases done, 23 were for various kinds of ovarian cysts, 1 for “tumors of both ovaries,” 6 for pus tubes, 3 for chronic salpingo-oöphoritis, 1 for a large inoperable uterine fibroid in which Tait's plan of ablation of the appendages was practised, 1 for hystero-epilepsy, 1 for a parovarian cyst, and in 2 cases the reason for the operation was not given.

Of the 23 cases of ovarian cysts, 10 are mentioned as being dermoids, and in 8 of them both ovaries were similarly affected. In 1 (Gardner's) the pedicle was twisted on its axis three times, and in another (Thornton's) once. In both the tumor was very black, and no doubt the operation could not have been postponed with safety. In 1, double papillomatous cysts were removed. There were 3 cases of double multilocular cysts and 3 others with a multilocular cyst in one ovary, while some other form of disease, sometimes a dermoid cyst, invaded its fellow. In 2 of these one-sided multilocular cyst (Potter and Anderson), operated in the fourth and third months, the tumors weighed 34 and 26 pounds.

The presence of a parovarian cyst and a cystic ovary constituted the indications in 1 case. In 1 there was an ovarian fibrocystoma, and the other ovary was degenerated into a large cyst. In 8 other cases “ovarian cyst” was the pathological condition mentioned, and in 3 of them they were bilateral.

Of the tubal affections demanding operation we find 9 cases,

Name.	Indications.	Month.	Result.	Remarks.
Meredith ¹⁰ ..	Double papilloma- tous ovarian cysts.	Third...	Living child at full term.	Drainage tube thirty-six hours.
Meredith ¹⁰ ..	Right dermoid and left multilocular ovarian cyst.		Living child at full term.	Normal uterine contraction and perfect in- volution.
Michie ¹¹	Left pus tube; right thickened; inflamed and ad- herent append- age.	Fourth..	Natural delivery at full term.	
Gardner ⁵ ..	Dermoid; pedicle twisted three times; other ovary enlarged and cystic.	Second..	Delivery full term.	Wall of dermoid black; cavity irrigated; tube in five days, unsuspected.
Smith ¹² ...	Left tube nearly closed at fimbriæ and restricted at uterine end.	First....	" " "	
Prokopjeff ¹³	Double ovarian cyst.		" " "	
Montgomery		Third...	" " "	
Delagé- nière ¹⁴	Pyosalpinx and hematosalpinx.	Fourth..	" " "	Agglutinated in- testine adher- ent to uterus.
Cotterell ¹⁵ ..	Double multilocu- lar ovarian cysts	Third...	Abortion forty- two hours later, and death three hours later.	Keith drainage tube. A half- starved and cruelly-treat- ed woman.
Thornton ³ ..	Double dermoids; one pedicle twisted.	Fourth..	Living child deliv- ered at eight months.	
Mundé ⁴	Double dermoids..	Fifth...	Aborted seventy- two hours later.	
Potter ⁷	Left multilocular ovarian cyst, thirty-four pounds.	Fourth..	Delivered full term	
Stratz ¹⁶	Cystic right ovary	Third...	Recovery.	No subsequent record.
Sutton ¹⁷	Double salpingo- oöphoritis.	Second..	Delivered twins, full term.	Unsuspected pregnancy.
Nelson ⁸	Hystero-epilepsy..	First....	Living child, full term.	Unsuspected pregnancy.
Hall ¹⁸	Ovarian cyst, and opposite append- age embedded in adhesions.	Third...	Full term, living.	
Eliot ¹⁹	Double pyosalpinx	Second..	Emptied uterus at five months.	
Garrigues ²⁰ .	Double dermoids..	Third...	Abortion eleven days later.	
Sylvester ⁹ ..	Inoperable uterine fibroid. Tait's operation.	Third...	Still-birth instru- mentally at term.	Pregnancy un- suspected.

Name.	Indications.	Month.	Result.	Remarks.
Kingman ²¹ .	Double multilocular cysts.	Third...	Living child at term.	Low forceps; severe post-partum hemorrhage.
Kingman ²¹ .	Double multilocular cysts.		Same night passed hydatidiform placental mole.	
Anderson ²² .	Multilocular cyst, twenty-six pounds. Other appendage removed for satisfactory reasons.	Third...	Normal labor at term.	Unsuspected.
Anderson ²² .	Pus tube and enlarged ovaries.	Third...	Living child at seven months.	
Roberts ²³ ...	Both ovaries and tubes bound by adhesions.	Third...	Living child at term.	
Morrison ²⁴ .	Double ovarian dermoids.	Fifth...	Living child at term.	
Schröder ²⁵ .	Left ovarian cysto-fibroma, right ovarian cyst.	Fifth...	Aborted seven weeks later.	Reported one month after operation.
Veit ²⁶	Tumor both ovaries.	Second.	Full term.....	
Martin ²⁷ ...	Double ovarian cysts.	Third...	Full term, normal.	
Polaillon ²⁸ .	Double ovarian cysts.	Third...	" " "	
Flaischlen ²⁹ .	Double ovarian dermoids.	Third...	" " "	
Bantock ³⁰ ...	Double ovarian dermoids.	Third...	No abortion.....	
Matthei ³¹ ...	Double ovarian dermoids.	Fifth...	Placenta previa fourteen days later.	
Landau ³² ...	Double ovarian cysts.	Fourth.	Living child at full term.	
Merkel ³² ...	Parovarian cyst and cystic ovary		Full term, normal.	
Mouchet ³³ .	Ovarian cyst and sclerotic ovary.	Third...	" " "	
Lebedeff ³⁴ .	Double dermoids.			Insane woman.
Baldy ³⁵	Double pyosalpinx and abscess of uterine wall.	Fifth...	Term labor.....	
Bovée	Double pyosalpinx	Second..	" "	

besides, in some of the ovarian-cyst cases, a condition of the opposite tube resulting from severe salpingitis, rendering non-intervention hazardous. In 6 of these 9 cases pus was present on one or both sides, and in 1 (Baldy's) an abscess in the uterine wall was curetted and sutured.

The indications for double salpingo-oöphorectomy during

pregnancy may be enlarged to include other pathological conditions of the appendages, but enough has been demonstrated to place beyond doubt the advisability of this operation during pregnancy with nearly the same impunity as when this complication does not exist, as will be shown later in this paper or by reference to the accompanying table. In many cases the presence of ovarian tumors is not noticed until pregnancy has progressed some months. This may be accounted for by the uterus pushing them up out of the pelvis to a position in which they are more readily discovered. Or it may result from the unusually rapid growth of tumors of the ovaries or the uterus during pregnancy, which has become a recognized fact. Koeberlé and Spencer Wells formerly thought ovarian tumors decreased in size during pregnancy. The latter once had a patient who had a dermoid for eighteen years and several full-term pregnancies in the interim. After each labor the tumor seemed to increase in size, and shrink during pregnancy. Such tumors usually grow more slowly than other ovarian tumors, yet it has been well proved that pregnancy, instead of decreasing, usually increases the size of such tumors. Dermoid cysts are far from innocent and are remarkably common in pregnancy.

In my table they were present in 10 of the 23 cases of ovarian cysts, and in 8 of them double. When double in pregnancy their positions are in front of and behind the uterus usually. They are exceedingly liable to axis rotation, in which condition a dermoid would be extremely dangerous. As alternatives for operation in such cases we have puncture of the cyst, induction of premature labor or abortion, with or without subsequent operation, Porro's operation, or ovariectomy at term or later. I feel none of them are true alternatives for early abdominal operation. They may be employed in certain special cases in which an abdominal operation is inadvisable at the time. Litzmann found in 56 cases of pregnancy complicated by ovarian tumors 24 women (43 per cent) died in labor. Heiberg²² found in 291 such cases one-fourth of the mothers and three-fourths of the children died, and Jetter says 30 per cent of women under such conditions die in labor. Playfair says of 13 such cases left to Nature 7 recovered and 6 died, and T. Spencer Wells mentions 3 cases where death followed spontaneous rupture in the sixth or seventh month. It is not necessary to refer to statistics demonstrating the great danger constituted by pyosalpingitis as a complication of pregnancy and

labor. It is well known that during the stretching of the broad ligaments incident to the enlargement of the pregnant uterus, a pyosalpinx is greatly disturbed in its anatomical relations and may leak into the peritoneum at any time, thus creating extensive mischief. Especially is this probable as the result of pressure from the uterus in advanced pregnancy. During the violent contractions of the uterus and abdominal walls incident to parturition, rupture is exceedingly imminent.

In these cases, it should be remembered, we have two lives at stake. To terminate the pregnancy before the viability of the fetus has been reached is to deliberately sacrifice one of them. The mother's life is the more valuable usually, and therefore the one to be saved, if we must in a given case decide between mother and child. Fortunately this is rare. If an ovarian tumor be small, giving no trouble and not noticed until pregnancy has reached the ninth month, its extirpation may be postponed until after delivery. Under nearly all circumstances removal of the tumor is called for as soon as discovered. The early months—the third and fourth, according to statistics³⁷—are most favorable both for mother and child. In the later months the presence of the large uterus even handicaps the operation. Tapping is inadvisable, as the cyst contents are often exceedingly irritable to the peritoneum.

Double Pyosalpingitis complicating Two Months' Pregnancy.—Mary M., 39 years of age, multipara, was admitted to Columbia Hospital May 10, 1894, complaining of severe pain in both sides of the lower abdomen. Her last confinement was five years ago, and she has had three abortions, the last of which was about one year ago. Her menses began at the age of 13, have recently occurred every two to three weeks, and lasted but three days. They last occurred March 19, 1894. She has had a profuse yellow discharge since her trouble began three months ago, and gives a history of repeated attacks of pelvic inflammation during the past five years. She is now very nervous and troubled with loss of sleep and appetite.

An examination revealed a lacerated perineum and cervix, a normal vagina with no discoloration of pregnancy. The cervix was well to the left, and the uterus considerably enlarged but somewhat movable. The appendages were both much enlarged, fixed, and tender. Pregnancy and pus tubes was diagnosed and operation seemed imperative. Accordingly, on May 17, 1894, she was etherized and the abdomen opened. The uterus was found to be enlarged to about two

months' pregnancy. The left tube contained pus, which poured out of the fimbriated end when this was separated from adhesions, and the ovary was embedded in adhesions; the right ovary was much enlarged, contained what is known as a true corpus luteum, and was badly adherent, and the tube on this side contained about one drachm of pus. The appendages were carefully removed, the pelvis carefully cleansed with gauze, and the abdomen completely closed. She made a good recovery, and on the 24th of the following December was delivered by forceps, after a tedious labor, of a still-born child. Her confinement was in the obstetric ward of Dr. A. F. A. King in Columbia Hospital. She made a good recovery after labor.

Results.—But 1 death occurred in the 38 cases, a mortality rate of 2.6 per cent—a very low one for abdominal surgery for the conditions that were found. In this fatal case of Cotterell's the patient was a half-starved woman who had been severely beaten by her husband just before the operation. She aborted forty-two hours after the operation, and survived this last ordeal but three hours. Twenty-eight of the women were delivered at or near full term, two having premature children that thrived. One of the full-term cases (Sutton's) had living twins and 4 cases aborted, all within the first seven weeks after the operation. In 1 the uterus was emptied at five months' gestation, three months after operation, for fear that fixation of the uterus would cause difficult labor—a very doubtful indication for the procedure. In 2 no result is given, and in another the case was reported a month after operation. Although abortion had not then occurred, we do not know the history for the six months after operation. In another case a hydatidiform placental mole was passed shortly after operation, and in the remaining 1 placenta previa was discovered fourteen days after operation and the uterus emptied. Of the 32 cases we have to consider from this standpoint, 4, or $12\frac{1}{2}$ per cent, aborted, and in 1 (Martin's) abortion was probably averted by the operation; 2 were delivered at full term by forceps of stillbirths. In 1 was a large fibroid, and in the other the death of the child was probably due to tedious labor. Another had severe postpartal hemorrhage, after delivery of a living child with low forceps.

We have, then, of the 32 cases, 32 living mothers and 26 living children. This is believed to be as good a result as attains in general obstetric practice without such severe complications.

The extreme degree of tolerance of the pregnant uterus has been frequently demonstrated by the various accidents that have occurred to pregnant women and from which various injuries of the lower abdominal and pelvic organs have resulted. It is interesting to note in how many of the cases tabulated herein the presence of pregnancy was not suspected and manipulations of the uterus not spared, though in not one of them was the pregnancy interrupted. In some of them the peritoneal cavity was washed out, and in some a glass drainage tube was employed for various lengths of time up to nine days, without interrupting the pregnancy in but 1 case—the one that died. In Nelson's case, in which pregnancy was not suspected, the patient was even highly neurotic, having severe hysteropilepsy. She had not only complete cessation of convulsions, but a living child after a normal labor. In Delagénière's case intestinal loops were fastened to the uterus and separated with difficulty; no interruption. In Baldy's case the woman was insane, and not only had double pus tubes, but an abscess in the wall of the uterus that was curetted and sutured. The woman had a living child at full term. Myomectomy during pregnancy has often been successfully done. I might cite a case in my service at Columbia Hospital as an example. Mrs. W., 31 years of age, married in June, 1899. Her menses were profuse, lasted seven to ten days, were regular, and last occurred July 12. She suffered terrific pain in the hypogastrium since July, at which time she noticed a considerable swelling in the same region. The pain became unendurable before operation, November 2, 1899. The night before the operation she was given hypodermatically three-eighths of a grain of morphia, which did not sufficiently relieve her to permit sleep. The pregnant uterus was easily felt, and above it a large dumb-bell-shaped tumor lying transversely in the abdomen and reaching above the umbilicus. At the operation myomectomy was done, removing a six-pound degenerating fibroid attached to the posterior surface of the fundus by a pedicle one inch long and three by one inch in transverse dimensions. The stump was sutured by catgut. She made a complete recovery, and now (two months later) the pregnancy is continuing. She has never had the slightest evidence of uterine contractions. However, myomectomy is contraindicated during labor generally. Thus far about 60 per cent of mothers have died.

Technique.—In abdominal operations during pregnancy it is extremely important to molest the uterus as little as pos-

sible. Even handling it may excite uterine contractions that may end in emptying the organ. Certainly no forceps or volsella should be used to lay hold of it, if any other procedure can be employed. It is easily understood that the Fallopian tube and ovarian ligament need not be removed so close to the uterine body in removal of ovarian tumors as in salpingo-oöphorectomy for suppurative disease of these organs; and it is but reasonable to suppose the closer the ligature is placed to the uterus the more irritation of that organ is produced and consequent danger of invoking abortion. The Tyler Smith theory of labor pains being started by ovulation is surely blasted by the history of these cases. Certainly absent ovaries can have no such effect. One might infer from the teaching of Tait and the concurrence of his pupil—Johnstone, of Cincinnati—that the nerve plexus at the junction of the tube and uterus would still be acting as an excitant here, but no evidence appears to prove it. With a healthy uterus and a good general condition of the patient, menstruation does not occur after double salpingo-oöphorectomy in the usual way, and likewise it is improbable that it has any additional influence if pregnancy exist in this normal uterus. It is worthy of note that in some of these reported cases involution was normal. After operation the condition of the patient should be carefully watched, and at the first evidence of uterine pain or contractions opium should be administered sufficiently freely to control from the very start efforts at abortion before any damage is done.

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THE SURGICAL AND MECHANICAL TREATMENT OF DYSMENORRHEA.¹

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THE question may be asked of physicians generally, and of gynecologists particularly, "Is dysmenorrhea treated with greater success than it was twenty-five years ago?"

If the question were asked with reference to many other disorders peculiar to women, we might with truth give an affirmative reply, for surgery has revolutionized the treatment of many of the disorders of the pelvic organs of women. An exception is therefore made, and it is the intention of your essayist to briefly mention some methods of treatment more or less in vogue, and to pass judgment upon them, which may or may not meet with the approval of this Society.

This paper will, therefore, deal chiefly with those forms of dysmenorrhea believed to be "obstructive" or to require some

¹ Read before the Washington Obstetrical and Gynecological Society November 17, 1899.

means of altering the shape or size of the uterine canal. The whole subject of dysmenorrhea is far too wide to be discussed in a paper like this, which must be read and considered in one short evening. We will, therefore, first consider briefly the varieties, and then some methods of affording relief. The vast number of women who suffer pain at the monthly period would almost lead us to suggest that it is the rule for women, at some time during their menstrual lives, to suffer in this way. Indeed, many very excellent observers incline to the opinion that nearly all young women do suffer inconvenience, if not severe pain, at the period. We are often, indeed almost constantly, reminded of the amount of suffering due to the menstrual function, and we must all confess how powerless we are to more than mitigate its severity in most cases. We have every reason to believe that a very large proportion of our young women who are students of high schools, academies, and colleges do suffer greatly from dysmenorrhea, so much so that they frequently lose one, two, or even three days from their duties each month. No other proof of this statement is wanted than the well-known professional belief that all young women students would have better health could they be relieved of work during the menstrual period. But we have no time to consider this part of the subject, further than to note the influence of modern educational methods and of social customs upon the development of this now almost universal disease. As neurasthenia is becoming so prevalent, so is dysmenorrhea likewise almost always present in neurasthenic women who menstruate. But, aside from these neurasthenic cases, there are many cases of dysmenorrhea which appear to be due to some other cause than a neurosis. Authors divide these cases into constitutional and local, but for this evening we will only discuss those cases we believe to be due to some form of obstruction.

Symptoms.—The symptoms of obstructive dysmenorrhea are not classical nor even constant. We sometimes see women suffer greatly with bearing-down pains, like those due to the expulsion of an ovum, yet such cases do not always prove to have large, or even any, accumulation within the body of the uterus. The pain is then often “expulsive,” and out of proportion in severity to the size of the clot or membrane or amount of blood expelled.

Again, these cases having expulsive or bearing-down pains do not always have stenosis. The flexion, if present, is not

always marked, and if there is a slight stenosis the uterine sound will easily enter through the internal os. We often see quite as much or perhaps more pain in those cases having a small ("infantile") uterus and scanty flow. We have, therefore, some difficulty in reaching a decision in any case, even with the aid of bimanual examination under anesthesia, as to the cause of pain. The symptoms usually presented in girls and young women, although expressive of great local pain, often are accompanied by backache, cephalalgia, and other reflex or constitutional disturbances, all adding to the difficulty of making a diagnosis and of affording prompt and permanent relief. (It is generally supposed by the profession that real obstruction, due to a stenosed cervix, causes a retention of a considerable quantity of menstrual blood within the uterus, that this retained blood causes uterine colic, etc. It may be expelled in quantity, as with a powerful uterine contraction, or slowly, drop by drop, after softening and dilatation of the cervix is sufficiently accomplished. It has not been my good fortune to meet with a single instance of this kind where dysmenorrhea was the only, or even the chief, symptom. Obviously, these cases give rise to hematometra and similar conditions, which are not infrequently seen and treated by every gynecologist.)

Let us, then, in view of these rather serious hindrances to a clear and easy diagnosis, suggest, as far as possible, only medical, or at least no surgical, methods in the treatment of young and undeveloped women. It is my great desire to protect the young women, especially virgins under 21 years of age, from examinations, and especially from instrumental or so-called surgical treatment of dysmenorrhea. We must, in rare instances, make these examinations of young women, and, as generally suggested, rectal examinations will reveal all that is necessary or desirable to learn of the virgin pelvic organs.

In the absence of pelvic infection or severe displacements, it must be exceptional that we need resort to surgical intervention for the relief of dysmenorrhea. Personally, I wish to enter a protest against the common practice of regarding these slight malpositions of the uterus as the cause of dysmenorrhea. There is often a cause elsewhere than in the uterus itself, and it is our duty to ascertain this cause and remove it, as far as possible. We will also accidentally find many cases of displaced uteri which have never given their possessors any pain.

Excluding the young, undeveloped woman, and all others

having constitutional or other general or local causes for dysmenorrhea, we will find occasionally a sufferer from what we believe to be congenital or acquired obstruction or stenosis. This obstruction may, in rare instances, be due to malposition of the uterus, its body or neck, or to traumatism, etc. How shall we treat such cases?

First exclude other pelvic mischief, such as results of tubercular or other infection of any of the pelvic structures. In every case which has resisted the usual medical treatment, the consultant or specialist should make an examination under anesthesia. The uterine sound has probably been passed and the specialist will probably be told that it passes with difficulty. However, we recommend as of the utmost importance this administration of anesthesia in all chronic or persistent cases. It is unnecessary to say this here, for we all recognize the value of the information to be gained and the possible advantage which may accrue to the patient. We often find prolapsed and adherent ovaries and Fallopian tubes where such a condition has not been suspected. It is our duty to release these imprisoned organs. Some will accomplish this by massage, and with gradual and methodical, not to say patient and persistent, effort accomplish what may be done at one sitting. By this I do not wish to say that massage is not to be used, but we are not speaking of the massage treatment of pelvic disease at the present time. If the uterus is strongly flexed, repeated replacement, or even massage as suggested by Dr. Dudley, of Chicago, may be tried, but we have no positive evidence that the result of such efforts warrants any hope of important or even partial relief.

The mechanical relief of dysmenorrhea would include the application of pessaries in those cases where a displacement appears to be the cause of pain. My belief is that relief is not often afforded if the pain is due to alteration in shape or size of the uterine canal. Not so with "congestive" cases, however, or in those having a degree of prolapse, for these are often relieved. Given a case of real stenosis, which only admits a small sound or probe, and which, in our opinion, barely permits the escape of the menstrual flow, what is the best, safest, and speediest method of cure, if there be a cure known to the profession short of sacrificial surgery? Pages might be written on the treatment of stenosis by intrauterine stem pessaries, etc. The diversity of opinion now existing in the medical mind proves how uncertain is the relief afforded by these and similar

devices. Some authors, speaking with force and great authority, suggest divulsion, curettage, and packing with gauze in about all of these cases. They see *endometritis* at the bottom of each case.

It is doubtful if any uterus was ever cured of a flexion by a stem pessary, unless inflammatory changes induced by its presence helped to maintain the organ in position. (It must not be forgotten that, in nearly every case of flexion of the uterus, the body of the uterus itself has undergone changes at the flexure, due to defective circulation, pressure, atrophy, etc. Dysmenorrhea may be due to these changes in the muscles of the uterus as well as to those of the mucous membrane. Obviously, the routine, divulsion, curettage, or even use of intrauterine stem, must fail to cure such cases.)

In antelexion we have other resources to suggest than the use of stem pessaries, while in retroflexion or retroversion, of surgery, it may be said, very little is left to be desired to at least overcome the displacement.

In mild cases of stenosis of the internal os we have, in some instances, benefited patients by dilatation and insertion of Outerbridge's silver wire speculum stem, which permits drainage and prevents the return of the os to its former size. But even with this in position and an easy escape of blood provided, we may find that some other cause must be found to explain the great pain experienced by the patient. It is, however, a useful instrument, and can be used with less danger than the large hard-rubber stem.

The writer believes that, while forcible divulsion in some rare instances may relieve dysmenorrhea, it is an operation of great danger and ought to be done by experienced physicians only, who will know how to care for the patient in case of accident. We say this with knowledge and speaking after many observations of permanent damage done to patients previously free from organic disease. We do not believe competent men do the greater number of these operations, but we do know, from many statements of patients and physicians, that this and many so-called minor operations are done by incompetent and ill-advised parties, who promise no danger to their patients, while in numerous instances the train of woe resulting is a long one, and a sad one too.

NOTE.—Bland Sutton calls attention to the fact that we must estimate the size of an internal os as we withdraw the sound, because of obvious difficulties in entering the cavity.

Excepting operations requiring removal of intrauterine growths, the writer has not divulsed a uterus for several years. He believes the operation generally unnecessary, and he knows it is the rule for "divulsion" to be rarely of permanent benefit. If any one thinks, by extreme nerve pressure produced in this way, he can relieve pain in a sensitive cervix, all well; but there should be little need of extreme laceration of muscular or even of mucous tissues. Gradual dilatation with steel sounds or small dilator, just before a monthly period, occasionally does lessen the pain, although there is no great amount of stenosis present; but this does not continue, and unless we use this tentatively, or during the months required to restore the patient's general health, we fail to provide permanent relief. Slight dilatation does, however, suffice in some instances to indicate the kind of treatment required.

With reference to the utility of "discission," our limited experience does not suffice to furnish an opinion. We have rarely thought such an operation indicated and have consented to its performance only a few times. Slight incision of the external os uteri is, however, occasionally required, and if the canal is kept open by an Outerbridge wire speculum or continued packing with gauze, some relief may be obtained. The writer has performed these operations more for the relief of sterility than for dysmenorrhea.

Divulsion of the cervix was first practised and taught by Sir James Simpson, who used the bilateral incision. Sims gave the weight of his opinion in favor of antero-posterior incision, and, as all know, cut the anterior wall as well as the posterior lip when necessary in acute ante flexion. But even in my very limited experience the operation has repeatedly failed, and, without mentioning its failure to cure at the time of operation, its object is not attained, for both incisions generally reunite and the final effect of the operation is *nil*.

Dr. Skene favors an operation upon the anterior vaginal wall intended to straighten the flexed uterus, but the writer is not convinced of its efficacy for the relief of pain. Finally, we must consider Dudley's modification of Sims' operation, and we take pleasure in noting its chief merit—namely, *that the canal of the uterus can be made to stay open*, a desideratum beyond the reach of all other operations which do not produce excessive traumatism.

The writer has practised Dudley's operation in two instances. One of these cases occurred in a young, single woman, age 33, who had been treated by one of our best physicians for at least

ten years without relief. She had the typical symptoms of obstructive dysmenorrhea, with acute ante flexion, but also had the neurotic type of the disease. It was a matter of opinion which was *post hoc* or which was *propter hoc*. The smallest sound could with difficulty be introduced into the cavity of the uterus. Her uterus had been dilated many times, and she experienced some relief from this during the first twenty-four or thirty-six hours of her flow, usually the time of her greatest pain.

It was decided to try Dudley's operation for the relief of the stenosis. The posterior lip and lower third of her uterus was thoroughly divided until a large (No. 16) sound easily entered the cavity of the body of the organ. Then the incised posterior lip was sutured into the angle of the incision, high up, so that very little raw surface was left, and at the same time presenting a future closure of the canal by granulation. The relief was not important at the next succeeding period, but this was due to the very nervous condition of the patient, for each period has been attended with diminished pain and the patient is very glad the operation was performed. Another case gave indefinite results at first, but is now in greatly improved health and her dysmenorrhea is better. Both these cases are perfect results so far as the operation is concerned, because a No. 12 or 15 sound easily enters; but the patients must be cured of the "neurotic habit" before a full and complete recovery is secured.

Conclusions.—1. A large majority of cases of dysmenorrhea occur in neurasthenic or neurotic women, and operative treatment alone will not effect a cure.

2. Dysmenorrhea due to flexion is not cured by the use of the intrauterine stem, for at best the uterus is kept straight only while the stem is in position.

3. The practice of divulsing the uteri of virgins under 21 years of age, or before maturity and complete development of the organ, is generally to be condemned.

4. Dysmenorrhea due to actual obstruction or stenosis is rare, and if present we frequently find that one or more ineffective operations have been done.

5. Dudley's modification of Sims' operation appears to promise good results, as it insures a large cervical canal which cannot be closed by cicatricial contraction. But this operation is only indicated in cases of stricture (stenosis) of the canal, or else in those rare cases where an ante flexion of high degree prevents the escape of the menstrual flow.

FIBROMA OF THE OVARY.

BY

ABRAM BROTHERS, M.D.,

Adjunct Professor of Gynecology at the New York Post-Graduate School and Hospital;
Visiting Gynecologist to Beth Israel Hospital, etc.

(With illustration.)

ABOUT the middle of last May, Dr. Morris Cisin, of this city, kindly referred Mrs. E. G. to my clinic for examination. According to the history she was 47 years old, a native of Russia, and the mother of several children. Her parents were still alive, the father having reached the ripe old age of 95. Her previous history was excellent up to six years ago, when she noticed a swelling in the abdomen. Although it had never caused her any severe pain, it had steadily grown in size and was now the size of an ordinary cocoanut. Her menstruation was normal.

In the examination before the class a hard, solid tumor was mapped out in the median line of the pelvis and apparently continuous with the uterus below. Owing to the thick abdominal wall and the generally nervous state of the patient, a very minute and careful examination was not possible. Still, from the data at hand—a slowly growing tumor of hard consistence, apparently connected with the uterus, and situated in the median line—we felt justified in making a diagnosis of fibroid tumor of the uterus. An operation was suggested, which the patient declined.

Several weeks later the doctor told me that the patient was feeling quite badly. She had developed symptoms of pelvic inflammation with temperature. He asked me to take charge of her in the hospital.

On June 1 she was admitted to my service at the Post-Graduate Hospital, with a temperature of 101.8° F. and pulse rate of 136. Examination at this time showed a tympanitic condition of the abdomen, with such exquisite pain that a physical examination was entirely out of the question. The pain seemed to be general. During the next week the patient suffered from chills, alternating with a temperature range of 101° to 104° F.

The diagnosis of pelvic suppuration was made, and, as the temperature seemed to subside, she was put under the influence of ether on June 8, when I performed laparotomy before the class, assisted by Drs. Cilley, O. Keenan, and Deal of the house staff.

With the patient in Trendelenburg position, a large incision was made in the median line and the tumor found embedded in adhesions on the left side. After a little manipulation, the uterus was found to be of normal size and distinct from the



Fibroma of ovary.

growth. On gently separating the tumor from the surrounding structures, a mass of foul, stinking pus suddenly welled up from the whole pelvic cavity. The upper portion of the abdominal cavity had been shut off with gauze pads (as is my practice in all such cases), so that on lowering the table the pus was kept from contaminating the entire peritoneal cavity. The pus was rapidly wiped away with gauze pads and the tumor brought up out of the wound. It was found to be a fibroid tumor of the left ovary, with a large, broad pedicle. This was clamped and the tumor cut away. The remaining

stump of the pedicle was then ligated in sections and the clamps removed. The whole pelvic cavity was again wiped dry and flushed with peroxide of hydrogen, which was in turn wiped out. From the character of the pus, and the fact that it seemed to have filled the entire pelvis, we decided on free drainage. An incision was made in the cul-de-sac of Douglas and a gauze drain passed into the vagina below. Another gauze drain was passed from the stump out of the lower angle of the abdominal wound. Both drains were of iodoformized gauze. The rest of the abdominal wound was closed with silkworm gut passed through the entire thickness of the abdominal wall and supplemented by a continuous catgut suture uniting the fascia. A dry dressing was applied and the patient returned to bed in good condition.

After the operation the temperature rose to 104° F. and pulse to 144. Calomel in fractional doses followed by Epsom salts was started on the same day, and resulted in a movement of the bowels on the following day. On this day (June 9) the temperature dropped at one time as low as 98° F. and pulse to 100. On June 10, owing to the soiled condition of the dressings, the wound was examined and found to be soiled with feces and to be in a bad condition. It was washed with peroxide of hydrogen and packed with fresh iodoformized gauze. It was also freely dusted with iodoform powder. On June 11, at the time of dressing, fecal discharge was present in the abdominal wound and in the vagina. Both regions were carefully cleaned and repacked every day. The temperature kept running at a low range—98.8° to 101° F., with a corresponding pulse rate of 88 to 120. It was noticed at this time that the urine was much diminished, showed traces of albumin, a low specific gravity, and suspicious renal casts. During the next few days the patient, who had kept up a continuous moaning and grunting from the time of the operation, began to show signs of extreme restlessness; then her mind began to wander; and finally she became so delirious that it required the presence of several nurses and nearly the whole house staff at the change of dressing. Suspecting iodoform poisoning as the cause of her delirium, I placed the patient under chloroform on June 22, removed all the packings, and passed a thick rubber tube a foot long into the opening in the vaginal cul-de-sac and out through the abdominal wound. Only sterilized plain gauze was used from this time on, and the tube was daily syringed with bichloride of mercury solution (1 : 3000). Owing to the

suspicious behavior of the kidneys she was given calomel and acetate of potash.

Gradually but steadily the sloughing and fecal odor had disappeared, so that on June 24, although a slight odor was still appreciable, the abdominal wound presented a healthy granulating appearance. On June 25 the temperature dropped below 100° F. and pulse to 88. There was hardly a rise above these figures from that time. By June 26, although still slightly wandering at times, the patient was very much quieter and the kidneys were acting freely. Shortly after this the delirium entirely disappeared and the patient had long periods of sleep. On July 11 I suggested drawing the tube downward, cutting off a piece daily and allowing the abdominal wound to close, so that on July 15 the tube was entirely removed. The abdominal wound, however, failed to close—a large, gaping aperture several inches in length persisted, leading down to the pelvic cavity. Therefore on August 7, under cocaine anesthesia, I cut away the edges of the abdominal wound, curetted the floor of the wound, and then passed three worm-gut sutures, leaving just a small opening for gauze to be passed down the depths of the sinus. This secondary operation healed by primary union. On August 10 the patient was out of bed and shortly afterward was discharged. The sinus, however, remained open until about the 1st of December before it was entirely healed.

Prof. H. T. Brooks, who was kind enough to examine the specimen for me, sent me the following report: "Microscopic examination of tissue removed from seven different localities in the 'ovarian' tumor showed typical structure of fibroma. Sections from the wall of the greater cavity on cut surface showed a dense, lamellated fibrous lining; sections from the smaller cavity showed a glandular epithelial lining. In some portions of the tumor there is decided evidence of myxomatous or colloid infiltration; in other parts the tissue closely approaches type of muscle tissue. I could find no trace of tissues indicating ovarian structures."

It is well to add that Prof. Brooks assured me that, after carefully considering the gross and microscopic appearances of the tumor, he rather leaned toward the diagnosis of fibroma of the ovary as against a possible pedunculated uterine fibroid.

The tumor was oval-shaped and measured 5 inches in length by 4 inches in width. It weighed 16 ounces. It had the kidney shape with constricted hilum, considered to be characteris-

tic of ovarian fibroids. It had several cavities, one of which, according to the microscopic report, was a true cyst. Besides the evident fibroid structure of certain portions, recognizable to the naked eye, there were other portions which proved to be myxomatous or in a state of colloid degeneration.

Several interesting reflections are suggested by this case.

1. Why did she have pelvic inflammation with suppuration?
2. Why did she have feces discharge through the wound?
3. Why did she pass into a delirious state when everything else bore a favorable aspect?

The first question is of particular interest to me, because I saw her several weeks previously at my clinic, free from pelvic inflammation and fever. I have known cases, after the passage of a sound into the uterus, to develop severe attacks of pelvic inflammation, and in at least three I have operated subsequently for pus tubes. But I do not recall the use of the sound in her case, although, in accordance with my routine practice, I invited several members of the class to examine her under my supervision. Was it possible that a traumatic peritonitis was started in this manner? Or was the pelvic inflammation started from an extraneous cause, as an attack of appendicitis? Although the fecal odor of the pus was marked at the time of operation and an appendicular lesion was suspected, it was not possible to determine this point because of the unjustifiable manipulations which such a search would have required.

The fecal character of the discharge in the dressings might be attributed to injury of the intestine during the course of the operation. I think this can be excluded, as the adhesions were not dense and the opening in the cul-de-sac of Douglas was carefully made. Besides, the pus had a fecal odor from the start. If a complicating appendicitis had been present it would readily have explained this element in the case. I recall distinctly that, although the tumor was on the left side, the patient claimed that the pelvic pain, before it became generalized, had started on the right.

The delirious state into which the patient passed might have been due to uremia as well as to iodoform poisoning. There is no doubt that iodoform was used freely in this case in the shape of powder and gauze packings above and below. To be on the safe side, I decided to simultaneously attack both phases of the question; and while we cut off iodoform abso-

lutely in the subsequent dressings, we proceeded at once to employ diuretics and cathartics.

Although fibromata of the ovaries are not unknown, they are of sufficient rarity to be of interest. In more than a hundred intraperitoneal operations which I have done, it is the first case which I have met.

Without caring to rehash the older literature on the subject, I have looked up the records of the years 1897 and 1898 and find the following operated cases reported:

1. C. J. Cullingworth¹: Single woman, age 21. Had noticed the tumor growing for two years. The tumor (a pure fibroid of the ovary) was 10½ inches long and 5 inches thick. It weighed 5 pounds 6 ounces and had a pedicle 2 inches long. There were few adhesions. Excepting a small serous cyst, the opposite ovary was healthy. Recovery.

2. Alban Doran²: Married woman, age 49. A uterine fibroid suspected previous to operation. Ascites present; no adhesions. The tumor weighed 4 pounds 7 ounces. It proved to be a pure fibroma of the ovary, with a central cavity due to breaking down of its structure. Recovery.

3. C. E. Purslow³: Single woman, age 26. The tumor reached to the umbilicus, and there was free liquid (about three pints) in the peritoneal cavity. The tumor weighed 41 ounces and had a long pedicle. On examination it was found to be a fibroid undergoing fatty degeneration. Recovery.

4. H. Briggs⁴ reports a series of 8 cases of fibroma of the ovary—2 in single women. The ages ranged between 22 and 68 years. In 6 ascites was present. Among the 8 are included myofibroma, cellular fibroma with mucoid patches, myxofibroma, calcified fibroma, and spindle-celled fibroma. All of the women recovered.

5. Alban Doran⁵: Of 11 cases reported in this society since 1879, 10 were operated and recovered; 2 of the cases included in this report were operated by Doran; 2 of the patients were under 20 years of age; in 5 there was free liquid in the peritoneal cavity; 1 of the tumors exceeded 10 pounds in weight.

6. MacNaughton Jones⁶ at this meeting referred to a sim-

¹ Trans. Obst. Soc. London, 1897, xxxix., 279.

² Ibid., p. 37.

³ Lancet, 1897, i., 1393.

⁴ Brit. Med. Jour., 1897, i., 1083.

⁵ Trans. Obst. Soc. London, 1897, p. 187.

⁶ Ibid., p. 208.

ilar tumor removed by him from a young girl of 22. Recovery.

7. Handfield Jones¹ referred to a similar case occurring in his practice in a woman of 58. Recovery.

8. Paul Morély²: Young woman of 22. Tumor (pure fibroma) the size of a fist. Opposite ovary showed signs of fibroid degeneration and was also removed. Recovery.

9. W. H. Jalland³: A married woman of 26; amenorrhea for two years and never pregnant. A solid (fibroid?) tumor the size of a hen's egg in the left ovary. Operation followed by the return of menstruation, with subsequent pregnancy.

10. S. S. Briggs⁴: Widow, 38 years old. Lump noticed eleven years previously. Patient operated in the presence of a temperature of 101° F. and pulse of 140. Tumor weighed 7 pounds and had its pedicle twisted four times. It was strangulated and showed calcareous degeneration. Recovery.

11. Wm. C. Wood⁵: Single (?) woman of 20. Abdomen was tapped eleven times. Ascites (20 pints) at time of operation. Solid tumor (fibroid?) rotated on its pedicle. Recovery.

12. Pichevin⁶: Married, age 36. Diagnosis of ovarian cyst. Tumor weighed 2 kilos 410 and was regarded as a fibromyoma.

112 EAST SIXTY-FIRST STREET.

MALIGNANT TUMORS OF THE KIDNEYS IN CHILDREN.¹

BY

J. THOMAS KELLEY, JR., M.D.,

Washington, D. C.

THE most common tumor of the kidney in childhood is sarcoma, and it usually develops in the first two or three years of life, and often grows to an enormous size, filling more than half

¹ Ibid.

² Bull. de la Soc. anat. de Paris, 1898, lxxiii., p. 617.

³ The Lancet, 1898, ii., p. 27.

⁴ Nashville J. M. and S., 1898, p. 124.

⁵ N. Y. Med. Jour., 1898, p. 584.

⁶ Jour. de Méd. de Paris, 1897, ix., 437.

⁷ Read before the Washington Obstetrical and Gynecological Society, November 3, 1899.

the abdominal cavity. The growth is frequently very rapid, reaching a large size in a few weeks.

Among the causes assigned are trauma, heredity, irritation by a calculus, a diseased condition of the kidney brought on by some infectious disease, as an exanthem, and Cohnheim's theory of misplaced embryonic tissue. Trauma occasioned by jumping or a fall is frequently said to be a cause, but the kidney is so placed that it is well protected and is seldom injured by accident. The probability is that the tumor is first noticed during the examination after an injury, and this is assigned as a cause. Rindfleisch endeavored to explain the trauma theory by an injury done to the regulating nerve fibres, thus permitting the abnormal growth. Our Dr. Carr would probably agree with this nerve power loss as a cause. In nearly all cases the symptoms have been too far removed from the accident for there to be any real connection. The history is rather vague, though some cases are on record, as, for example, two brothers with kidney tumors. George Walker, at Johns Hopkins Hospital, who has written a very complete paper on this subject, says he has been unable to find a stone preceding the growth in a child. As far as infectious diseases are concerned, several cases are recorded as following scarlet fever, but these diseases are so common in childhood that it is very probable that they do not play a very important part as a cause. The age for these tumors seems to be pre-eminently childhood. Rohrer claims over one-third of all cases of primary cancer of the kidney occur in childhood; of his 115 cases, 37 occurred before 10 years, 31 were infants and children up to 5 years. Roberts reports 16 out of 53 less than 4 years. It is claimed by some observers that the left kidney is more often affected and that it is more frequent in males.

The organs are displaced according to the size and position of the tumor; the liver, in those of the right side, being pushed upward, and in one case the diaphragm was pushed up to the fourth rib. The stomach, spleen, and intestines are crowded to the right or left side, corresponding to the kidney affected. The visceral peritoneum is thickened and congested in the neighborhood of the mass and more or less adherent. The colon is found very frequently to pass over and be adherent to the anterior surface of the tumor. The ascending and transverse colon, in small tumors of the right side, pass across the front with no displacement. In the larger tumors these portions are pushed downward and inward and lie on the inner border

of the tumor. Adhesions of the peritoneum are quite common also; there are sometimes adhesions to the stomach, liver, intestines, vena cava, omentum, pancreas, spleen, and diaphragm. One of the largest weighed $36\frac{1}{2}$ pounds. The larger tumors are usually soft, elastic, and in places distinctly fluctuating, and sometimes, in exaggerated cases, seem to have the appearance of immense cysts. At times hard nodules project from the surface. A certain degree of bulging is usually present, being produced in quite a number by a partial erosion of the capsule and bulging of the semi-fluid contents. In the older tumors the color is a grayish red to a dirty yellow, or, if extravasation of the blood has taken place, a dark brown or black; in some there is a uniform reddish or gray, resembling brain substance. The capsule varies in thickness of letter paper to two centimetres; it is fibrous and intimately adherent to the substance of the tumor. In the large and advanced tumors, sometimes a half or a fourth is taken up by a dark red, semi-fluid substance made up of extravasated blood and degenerated material; at times there is a cheesy material resembling tubercular. The tumors which contain adenomatous tissue to any extent have a homogeneous softening and a deeper red color, and, while soft, are not so friable as the degenerated type. The blood vessels are large and numerous; in about one-seventh a portion of the kidney remains. Both spindle and round cells are found in the sarcomatous, adventitious tissue is present in a few, and cartilage has been found. A very few are of an endothelial nature. Metastasis is frequent; in 51 cases cited by Walker, 11 were in the liver and lungs, 11 in the other kidney, 10 in the retroperitoneal glands, 6 in the mesenteric glands, 6 in the vena cava, 3 in the pleura, 4 in the liver, 1 in the portal vein, 1 in the diaphragm, 1 in the rectum, and 1 in the bladder. The colon and intestines are sometimes affected by contiguity. Statistics show metastasis occurring in more than half.

The most characteristic symptoms are the tumor mass, hematuria, pain, and cachexia, with a number of secondary symptoms caused by pressure, as vomiting, dyspnea, edema, jaundice, etc. The tumor mass is almost always present; it usually precedes the other symptoms from two days to a year. Sometimes it is discovered accidentally, as on examination after a fall, or the nurse or parent may first perceive it. It is first felt in the lumbar region; it is firm and at first movable. The abdomen appears at first distended, the greatest prominence

near the umbilicus. The skin is tense and shiny, the superficial veins are enlarged and tortuous. The small tumors are movable and not tender, the large ones are fixed. The edges are rounded, the surface usually smooth. The shape is renal, ovoid, or globular. Dulness usually begins near the spine, and is present near the lumbar region and extends forward over the most prominent part of the tumor. Usually there is a narrow line of tympany between the tumor and liver, and a second where the colon passes, though the latter may be so flattened that this sign does not exist. Pain is present in about one-fourth of the recorded cases. It varies in intensity from a slight intermittent attack to agonizing paroxysms; the intermittent are said to be caused in some cases by blocking up of the ureters by blood clot and detritus. Hematuria may occur early in the disease and not recur, or it may recur at intervals. The color of the urine varies from a smoky tint to a dark red or nearly black. The quantity is normal in the majority of cases, and the color is frequently also normal. Constitutional symptoms present themselves toward the middle or latter part of the malady. Loss of strength is very gradual during the first half, but later rapid. Uremic symptoms are rare.

The diagnosis is usually made from the foregoing description. Or, to recapitulate, tumors of the kidney are more common in childhood than tumors of the other organs; the swelling is usually in the lumbar region and of very rapid growth; they extend downward toward the ilium and inward toward the umbilicus; they are moderately regular in shape; they do not bulge in the back, are not sensitive, and are uninfluenced by respiration; frequently the colon may be found over the anterior surface. The disease always tends to a fatal termination.

Medical treatment is no good, but, if operation cannot be done, Coley's serum treatment might be tried. Steele says nephrectomy offers the only hope of cure or of prolonging life. The operation should be done by the extraperitoneal route if the tumor is small, but if it is large there is no good reason why the peritoneum should not be opened with as little fear as in operations for any other peritoneal tumors.

The following case came under my observation: Anna Y., 8 years old, white, was placed in my care in the summer of 1898. She was sent by Dr. Wilson, of the Pension Office, and had been living in Virginia. She complained of a large tumor in the right abdomen. The father comes of a consumptive family, but his health is good. Her great-grandfather on the

mother's side died of cancer of the stomach at 55 years of age. The mother's health is good. The patient as an infant had colic longer than most children and took a large quantity of Dewee's Carminative. Her negro mammy said at the time that she had something growing in her, but nothing was ever discovered by her parents or physician. After two years she slept well and grew into a large and healthy child; was very active and strong, and always played with the boys. She climbed trees a great deal, and had frequent falls, and would also fall flat on the abdomen when walking, but never seemed to be hurt. She had measles at 5 years and whooping cough at 6½ years. At 7 years she complained of feeling weak in the legs, and lost her appetite, and was sent away from home several times, but did not seem to improve. May 15, 1898, she had a fall while playing in the yard, falling flat on the abdomen. When taken up she seemed very ill and complained of severe pain in the abdomen. She was taken home and a physician called, who, after a careful examination, said she had a tumor in the abdomen, on the right side, as large as an orange, and he thought it malignant. Two other physicians were called, who did not seem to agree with the first, thinking the whole trouble was peritonitis caused by the fall. She suffered intensely for eight days and had moderate fever. Convulsions occurred at intervals for three or four days. The urine contained blood for three days. She then grew gradually better, but the tumor increased in size. I saw her first about July 1. I found a slight child of about 8 years, clear complexion and rather thin in flesh, and very nervous. Heart and lungs normal. A tumor observed through thin abdominal walls occupied the right abdomen, oblong in shape, extending from the ribs to the pubes and about one and a half inches over the median line to the left abdomen. On palpation it was found to be in contact with the liver, occupying the whole right abdomen and well over into the left, dipping down into the pelvis. There was a sulcus running from above near the umbilicus, downward and outward. The tumor felt solid below, but cystic in the larger central part. A diagnosis of tumor of the kidney was made. Dr. I. S. Stone kindly saw the patient and made the same diagnosis. Owing to the cystic character it was thought the tumor might be a cyst of the kidney. The urine was examined several times and was as follows: specific gravity 1015, acid, no albumin, no sugar. The microscope showed epithelium, amorphous urates, and many leucocytes. The patient was sent

to the Garfield Hospital. The operation was done the next day in the presence of Dr. I. S. Stone and others. The incision was made well to the right side from the margin of the liver to one and a half inches below the anterior superior spine of the ilium. An encapsulated tumor was disclosed, covered with enlarged and dilated veins. It was attached to the liver by dense adhesions, and reached well into the pelvis and beyond the median line, and was firmly adherent to the adjacent viscera. The tumor wall was separated with difficulty from the viscera, owing to the mass of adhesions, and especially from the under surface of the liver where the adhesions were very thick and vascular. The peritoneal covering was opened, disclosing a tumor of a reddish color. The tumor was peeled out of the capsule, the pedicle tied with silk, the ureter being tied separately and afterward brought into the wound. The soft part of the mass ruptured during the manipulation, and about a pint of bloody-looking fluid escaped, resembling broken-down tissue and pus with blood. As much as possible of the capsule was removed; the remainder was stitched to the abdominal wall and packed with iodoform gauze.

The pulse was 130 on leaving the table. Vomiting set in almost immediately and continued. She was very restless, but suffered very little pain. She died on the afternoon of the third day of shock and exhaustion. The microscope showed the mass to be small round-cell sarcoma.

1312 FIFTEENTH STREET.

CORRESPONDENCE.

HIRST'S OPERATION FOR INVERSION OF THE UTERUS.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

SIR:—A correspondent has called my attention to the fact that Barnes proposed making incisions in the cervix for the relief of inversion. I was well aware of the fact, being quite familiar with Barnes' description of his method, which he had successfully carried out in one case. It consisted in tying a piece of tape around the uterine body, pulling it down toward the vulva, and making two or three shallow incisions in the cervix from above downward, not more than a third of an inch

deep. This method would be so obviously futile and ineffectual in the majority of cases that it seemed to me not worth while to mention it.

My own plan is something quite different—namely, to cut the cervix in two from the external os to the lower uterine segment, making the incision in the median line posteriorly, where, if necessary to complete the section of the cervix, it would be easy and safe to open Douglas' pouch in an aseptic operation.

Very respectfully,

BARTON COOKE HIRST.

January 27, 1900.

THOMAS' METHOD OF REDUCING AN INVERTED UTERUS
(ABDOMINAL SECTION AND GLOVE-STRETCHER).

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

SIR:—In his article on "A New Operation for Persistent Inversion of the Uterus," published in the last (January) number of this JOURNAL, Dr. Barton Cooke Hirst says "Mundé and Küstner have each had a fatal case" by Thomas' method. This is an error, so far as I am concerned. The method failed in my case, in spite of persistent efforts with two glove-stretchers, owing to the immediate forcible contraction of the ring as soon as the stretchers were withdrawn; hence I removed the appendages, closed the abdominal cavity, and, fearing to leave the much-bruised and now useless uterus in the vagina, applied an elastic ligature, which brought about the sloughing of the organ by the thirteenth day, and the woman recovered. The method, therefore, was a failure, but not fatal.

I will merely add that I do not recommend the removal of the uterus for inversion under any circumstances; but in this instance and at the time it was performed (June 20, 1888) it seemed to me the only resource left me. My case is reported in "Thomas and Mundé," page 458.

PAUL F. MUNDÉ.

20 WEST FORTY-FIFTH STREET,
January 20, 1900.

TRANSACTIONS OF THE SECTION ON
GYNECOLOGY OF THE COLLEGE OF
PHYSICIANS OF PHILADELPHIA.

Annual Meeting, Thursday, December 21, 1899.

JOHN B. SHOBER, M.D., *in the Chair.*

DR. GEORGE E. SHOEMAKER read a paper entitled

VAGINAL HYSTERECTOMY FOR SMALL BLEEDING FIBROIDS.¹

DR. B. C. HIRST.—I do not know whether it is in order to express one's preference for the method of operation. Personally I have had little experience in operating per vaginam, except for cancer, and I prefer the abdominal route for small fibroid tumors. I operate for these small tumors when the woman's health is seriously impaired from the bleeding. I prefer doing an abdominal operation because it is easier, is not more dangerous, I think, a better stump is left, the vaginal vault is better, and I am better pleased with the woman's convalescence.

DR. H. D. BEYEA.—I was rather surprised to hear Dr. Shoemaker speak of vesical irritation as a pronounced symptom of such small fibroid tumors of the uterus. In the cases I have observed where vesical symptoms were present, the tumor was always large, grew from the anterior and lower uterine segment, and thus carried upward with it the bladder and distorted or pressed on this organ.

The abdominal method is the one I have always followed and believe the best in treating a tumor of this sort. It gives the advantage of accurate exploration of the position of the tumor and affords the possible and valuable opportunity of practising a conservative operation. It is in many such cases that myomectomy can be practised and the patient left with the tubes, ovaries, and uterus intact. Also, the accurate determination of the position of the tumor may allow, in those cases where myomectomy is not practical, the operator to perform the operation recently devised by Abel. Abel, in appropriate cases, removes the tumor with the upper portion of the uterus, and leaves the tubes, ovaries, and a sufficient portion of the uterine wall and corporeal endometrium to insure the continuation of the menstrual function and prevent the usual harmful atrophic changes. Through this operation the patient remains practically unchanged, with the exception that it is no longer possible for impregnation to take place. Of course, this

¹ See original article, p. 170.

operation is only applicable where such a tumor is present in a young woman, and is unnecessary in a woman approaching the climacterium.* In the latter cases, and where it was not advisable to do the operations spoken of, I would always practise supravaginal hysterectomy. I have applied Abel's method in one case recently, a young woman who was anxious to marry and wanted the functions to continue, and am satisfied that the operation is a good one.

DR. H. A. SLOCUM.—I would like to ask Dr. Shoemaker if he always removes the tubes and ovaries at the same time, and also what proportion of time is taken compared with abdominal section.

DR. W. A. N. DORLAND.—Dr. Shoemaker's paper is interesting and suggestive. While he was reading it two thoughts have occurred to me. The first question to consider is, must all these patients with small bleeding fibroids be subjected to operation, and, if so, what is the best operation to be attempted? If it becomes necessary to resort to operation, I agree with Dr. Hirst in preferring abdominal hysterectomy. The ligation of the blood supply I have no faith in. I have tried Battey's operation in a number of cases with very unsatisfactory results, probably because it arrests the smaller blood supply, the ovarian, which is not sufficient to correct the symptoms and stop the growth of the tumor. Martin's operation of vaginal ligation of the vessels at the base of the broad ligament is the preferable one. If I should be compelled to resort to vaginal hysterectomy I should prefer the clamp method throughout, rather than partially clamp and partially ligate, as suggested by Dr. Shoemaker. What I especially wish to say, however, is that it seems to me this is the class of cases in which it would be advisable to try the method of organotherapy, which has been suggested and practised by men abroad, notably Cheyne, Herman, and others, with considerable success. I have employed it recently in a number of cases of small bleeding fibroids with much satisfaction. Thyroid extract in suitable doses will control the bleeding in a remarkably short period of time. Only this morning I saw a patient who has been on thyroid extract for two and a half months. Her pain has all disappeared, and she loses no more than the usual amount of blood at the menstrual epochs. Dr. Shoer has had more experience with the other extracts, and claims from them even better results than that following the use of the thyroid extract. I repeat that this is the class of cases in which organotherapy should be tried and operation postponed as long as possible. The patients know that their tumors are small, and prefer other methods of treatment than operation.

DR. JOHN C. DA COSTA.—My preference is rather for abdominal operation where hysterectomy is necessary. In many of these small bleeding fibroids other means can be tried and sometimes give very great relief. An old method of treatment, before hysterectomy became common, was to dilate the neck,

split the capsule, and get rid of the fibroid. It is a very successful mode of treatment, and one which I did before hysterectomy was in vogue and before I did vaginal hysterectomy. Another mode of treatment is electricity. I do not say that electricity will cure this condition, but I have seen very good results in the checking of hemorrhage by the use of the faradic current.

As to thyroid extract, I have spoken several times of its value in fibroids, but not as to its effect on hemorrhage. My results have been rather in diminution of pain and increased comfort to the patient, a relief of the bearing-down pains and from the bladder and bowel symptoms. It has often given so much comfort that the patients refused to have anything further done.

When the tumor requires hysterectomy I prefer abdominal operation to vaginal. The operation described by Dr. Shoemaker seems to me much the same as that described by Dr. Pryor before us some months ago, which he had done one hundred times without a death. Pryor is a very expert man in this operation, and while he might do it with great success and Dr. Shoemaker might do it with great success, the average operator I do not think would. I have seen very serious accidents occur in vaginal hysterectomy, even with expert men. In one case the abdomen had to be opened to stop the bleeding from an artery. The trouble with the vaginal hysterectomy is that you are working in the dark.

DR. JOHN B. SHOBER.—Dr. Shoemaker has confined his paper to the consideration of small bleeding fibroids, and mentions that the other indication for operation in these cases is the development of nodules on the anterior wall of the uterus, pressing upon the bladder and ureter, thus causing obstinate vesical irritability. But he says that the chief indication for operation is hemorrhage. I think Dr. Shoemaker will admit that if the hemorrhage can be checked and controlled there will no longer be necessity for grave operations in these cases. I distinctly do not agree with those who insist upon removing every fibroid of the uterus they diagnose. Many women carry fibroid tumors for years, suffering no inconvenience. If, however, the tumor gives rise to troublesome symptoms, the chief of which are pain, hemorrhage, and those due to pressure, or if we have reason to think that degenerative changes in the growth are taking place, we must then consider the question of operation. We are discussing to-night the best means of dealing with small bleeding fibroids, and it has been shown that if the bleeding can be controlled the necessity for operation would not arise, except in the very occasional case where a fibroid nodule developing upon the anterior uterine wall causes vesical irritability. I have been able to control the hemorrhage in these cases by the use of the desiccated mammary gland of the sheep. Not only does this agent control the bleeding of uterine fibromata, but also in that large class of

cases depending upon uterine inertia and relaxation. I can recommend it wherever you have been accustomed in the past to use ergot or hydrastin or stypticin and the like, and I think you will find it more satisfactory than these. Since I have been using this agent I have not been compelled to operate on any fibroid for hemorrhage. Small uterine fibroids complicated by ovarian or tubal disease call for hysterectomy or myomectomy. In these cases I prefer the abdominal route. One is able, after the abdomen is opened, to decide whether one or both ovaries can be saved; also, the question of myomectomy can be considered; and, again, I think it of some importance to leave a large cervical stump.

DR. SHOEMAKER.—I would say that I personally prefer to do hysterectomy from above; that I have many more specimens of hysterectomy by the abdominal route for bleeding fibroids than I have of specimens of fibroids operated on through the vagina; but I have a good deal of respect for the vaginal operation in its results, as far as the freedom from the abdominal scar, from shock, from adhesion pains, and some other conditions are concerned. I take very carefully into consideration the choice between the two routes when a case of small fibroids has to be operated upon.

The pressure symptoms on the bladder have been severe only in two cases in my experience. In one case a nodule on the uterus had caught the left ureter and wound it around in a sulcus. From the kidney symptoms I was led to catheterize the ureter, and did the vaginal separation with the catheter in the ureter. In the other case, owing to a peculiar development, the fibroid was jammed low down in the pelvis, stretching the lower segment of the bladder in such a way as to give great distress.

The question of whether these operations can be prevented by organotherapy is one which is still open to proof. I, for one, would welcome any measure which would prevent the necessity for operation. It is very rarely that a small fibroid calls for operation in any case, but, as I have tried to show, it may do so.

DR. H. D. BEYEA read a paper entitled

A CASE OF MULTILOCLAR PSEUDOMUCINOUS CYST-ADENOMA OF THE RIGHT OVARY ASSOCIATED WITH PRONOUNCED SYMPTOMS OF DIABETES; OPERATION, WITH RECOVERY, FOLLOWED BY THE DISAPPEARANCE OF THE SUGAR FROM THE URINE AND THE DIABETIC SYMPTOMS.¹

DR. B. C. HIRST.—All I can say is to thank Dr. Beyea for his very valuable communication, and that we should bear in mind what he says in regard to the association of diabetes with ovarian cyst. I think none of us have had any such ex-

¹ See original article, p. 145.

perience. The lesson which he teaches is entirely new to me, and I feel very grateful to Dr. Beyea for presenting it to us.

DR. BEYEA.—I might say that I read this paper before the Section on Medicine of the College, and those present were unable to offer any logical explanation for the disappearance of the sugar from the urine and the cure of the diabetes in these cases. It was suggested that a reflex action would be a possible explanation, but it seems this is a highly hypothetical reasoning and almost out of the question.

DR. B. C. HIRST presented

A REPORT OF A CESAREAN SECTION FOR ACQUIRED ATRESIA
OF THE VAGINA: ALSO, A CURIOUS ANOMALY OF THE
UTERINE APPENDAGES.

These brief reports are simply intended to be included in the exhibition of specimens. First I desire to call attention to the possible difficulties in a Cesarean section for atresia vaginæ. on account of insufficient drainage. I have operated for such a condition twice. The first time I had no difficulty whatever. What little lochia there were after the Porro operation escaped freely, and the patient made an afebrile convalescence. In the last case, operated on for acquired atresia following a labor, there were the gravest difficulties. I naturally amputated the uterus. There was a little sinuous tract in the upper two-thirds of the vagina, in which I could barely pass a uterine probe. Following the operation there was a little lochial discharge from the cervix, which could not freely escape. Finally I was forced to provide free drainage from below by forcible dilatation of the sinuous tract, and the woman eventually made a good recovery, though there was infection of the cervical stump and prolonged fever. I think this case teaches the important lesson that in acquired atresia we must always provide ample drainage from below, even after a Porro operation.

The second case is one of destructive inflammation of the tube and ovary. The woman had been recently delivered in the University Maternity, which she had left well on the twelfth day. Three months after confinement she applied again for admission, with the statement that she had had a severe attack of puerperal sepsis after leaving the hospital, which had undergone spontaneous cure. She came to me with pelvic pain, fixation of the uterus, and incapacity for work. On opening the abdomen I found a curious condition of affairs: a normal tube and ovary on one side, and a small stump of a tube on the other side without a trace of tube or ovary. I think this case is an example of the destructive inflammation of tubes and ovaries reported from time to time. I have never seen anything just like this before, and I would be grateful to any member of the Section who may communicate a similar experience. The woman had never had an operation before, yet the left broad ligament presented the typical aspect of a case

operated on for the removal of one tube and ovary, with a rather long stump left after amputation of the appendages.

DR. H. D. BEYEA.—I think the condition of malformation of the tube described by Dr. Hirst must be very rare. I would like to ask him if the tube peritoneal covering continued at the same level in the broad ligament beyond the point where the well-formed tubal tissue ceased. A case operated on by Dr. Penrose two or three years ago showed a malformation of one tube which in some ways resembled this one, and might be considered to be the same, but a less complete deformity than the one Dr. Hirst describes. A normal tube extended out from the uterine cornu for about a half-inch, then for a half-inch the muscle and mucous membrane walls disappeared, leaving only the peritoneal covering, and then again the normal tube began and ended in a normal fimbriated extremity. There was no indication or history of inflammatory disease in this instance.

DR. SLOCUM.—I should like to ask Dr. Hirst why, in the case of atresia and amputation of the cervix, when he realized that the vagina was almost closed, he did not amputate the whole of the cervix and obliterate the cavity above the sinus. It would have been more simple and the case would have needed no drainage.

DR. HIRST.—Answering Dr. Beyea, the tube ended like a sharpened lead pencil. Dr. Slocum's suggestion is a valuable one: a panhysterectomy would probably have been the better method.

DR. H. D. BEYEA reported

TWO CASES OF PAPILLARY ADENO-CARCINOMA OF THE OVARIES,

and exhibited the specimens.

I present these two cases of malignant disease of the ovaries because they represent a rather rare form of new growth of these organs and are interesting pathologically. Also, I wish to briefly point out what are to my mind the indications for operative treatment and the extent of operative treatment which should be practised in this form of disease and the papillary serous cyst-adenoma of the ovaries.

The first case, M. H., American, white, married, housewife, 52 years of age, was admitted to the Gyneccean Hospital on November 14, 1899. Her family history was good. She had had the usual diseases of childhood, but otherwise had been healthy until the present illness. The menstrual history was normal, the flow occurring every twenty-eight days and lasting five to six days. The menopause took place at 46 years of age, and since that time there had been no discharge of any sort from the vagina. She is the mother of one child, now 16 years of age, and has had three miscarriages. Two years ago she was taken with severe pain

in the upper portion of the abdomen, associated with nausea and vomiting and some abdominal distension; also, the bowels were loose and the stools mucous. Such attacks afterward occurred every four or five weeks, each lasting about an hour. In the interval between attacks she was much troubled with indigestion and abdominal distension. Early in this illness she was seen by Dr. Frederick P. Henry, of this city, who diagnosed her trouble as intestinal indigestion and prescribed a treatment which gave her much relief. In May, 1899, she noticed for the first time a tumor growing in the right ovarian region. The tumor was, she thought, about the size of an apple and movable. Her strength soon began to fail, she was losing in weight, and, becoming much worried concerning the tumor discovered in the abdomen, she visited the gynecological dispensary of one of the hospitals in this city. She was told that she had a serious disease. She made visits once a week and received treatment for the next seven months. The tumor steadily increased in size, became immovable, and was distending the abdominal wall. Feeling that she was fast growing weaker and it would soon be impossible for her to get to the hospital, she asked if something could not be done to relieve her. She was told that her disease was beyond help. On November 7 she was referred to me, giving the history described. She was emaciated, very weak, and scarcely able to walk. One could see at once that she was very ill, and she had the worried expression and emaciation usually associated with large ovarian tumors. There was, however, no cachexia. Abdominal examination determined at once a tumor irregularly distending and filling the abdominal cavity to two inches above the umbilicus. On making palpation over the tumor it was easily determined to be a semi-cystic and multilocular growth. Over the surface could be felt here and there a small nodule, movable beneath the abdominal wall. One of these nodules was quite tender. The tumor mass could not be moved, but the abdominal wall was easily separated from the surface of the tumor. No crepitus or other indication of localized peritonitis could be demonstrated. There were no physical signs of ascites, and no secondary deposits could be felt in the abdominal wall or on the intestines or structures above or to either side of the tumor.

On making a vaginal examination the mucous membrane of the vaginal outlet and vagina was seen to be of a distinctly bluish color. There was a small laceration of the perineum and a good-sized cystocele. A nodule the size and shape of an enlarged lymph gland was felt in the recto-vaginal septum at the vaginal fornix. It was quite hard in consistence, movable beneath the mucous membrane, and entirely separable from the abdominal growth. The uterus was displaced bodily upward and forward by the semi-cystic and multilocular growth which filled the pelvis and abdominal cavity. This growth seemed to be composed of a large and small mass, the small

mass being toward the left side and the large one toward the right side. What were suspected to be secondary nodules or implantations were indistinctly felt over the surface of the tumor in Douglas' pouch. After making these examinations carefully twice, I was convinced the growth was a semi-cystic malignant disease of the ovaries, most probably a bilateral growth, beginning, by implantation, to involve the peritoneum, and therefore a papillary cyst-adenoma, or possibly a papillary adeno-carcinoma. Knowing that the history of these papillary cyst-adenomata with secondary implantations on the peritoneum is not malignant in the usual sense, and that it is possible for the patient to recover her health if the primary disease is removed, as occurred in one case I have observed, I determined to seriously consider the question of operation, and asked the patient to enter the hospital. Further, by abdominal palpation I was unable to find any secondary involvement of the abdominal wall, intestines, or other structures in the peritoneal cavity, and the nodule in the recto-vaginal septum resembled a large gland, was movable and could secondarily be removed, and therefore was no just contraindication to operation. Besides, we know that such a metastatic growth takes place by the particles or cells of the papillary growth being taken up by the peritoneal stomata, carried to a lymph gland, which acts as a filter and prevents in these cases the further metastatic deposit of the disease. If the gland were removed there would be a very good chance that it would not return. The physical condition of the patient was, however, very poor, her pulse was weak and rapid, she was scarcely strong enough to walk about, and certainly could stand very little in the way of operation. On admission to the hospital she was placed on a stimulative treatment (whiskey, strychnia, and digitalis) and a nutritious diet. Under this treatment she did not show any distinct improvement during four days, and it was very evident that if anything were to be done for her it must be soon.

The urine was normal and no lesion of the heart or lungs could be found. The preparation for operation was accordingly begun. The purgation, which was unusually mild, caused extreme weakness, the pulse going up to 130. This rather frightened me, and I concluded to operate the next morning only if the patient's condition was improved, feeling that, even though she might die on the table. I was in duty bound to give her the chance of getting well. Her condition under treatment improved quite considerably during the night, and also influenced by her statement that she wanted the chance to get well, even though she would run the risk of dying on the table, I decided to operate. My plan was to open the abdominal cavity, and if I found there was any possibility of removing the greater part of the growth, to do it as quickly as possible, otherwise to close the abdomen.

The abdomen was opened by a small incision and an exploration of the tumor masses and intestines quickly made. There

were several intestinal adhesions, but few secondary implantations, and these in Douglas' pouch. I therefore at once decided to remove the disease. The incision was enlarged. The adhesions were separated, the large and then the small tumor enucleated and the pedicles ligated in the usual manner, and both growths and the Fallopian tubes removed. Three or four small bleeding points were controlled by ligature, a gauze condom drain introduced over the position of the small secondary growths, and the abdomen closed with mass suture. The duration of the entire operation was thirty-five minutes. The pulse was rapid and weak during operation, and strychnia and whiskey were administered hypodermatically. Also, hypodermoclysis of a pint of normal salt solution was practised, being begun soon after the onset of the operation, and a second pint was introduced immediately after the operation. The patient was returned to her bed with her pulse quite weak, but 96. An enema of coffee (six ounces), followed by an enema of normal salt solution, was given. Whiskey, strychnia, and digitalis were given hypodermatically at intervals for the next three days. Nutrient enemata were given every six hours. The patient progressed fairly well as regards pulse and temperature, the pulse never going above 120 and the temperature 100° F., but soon after coming out of ether she became nauseated and vomited at short intervals during the next three days. Purgation was begun (calomel, one-quarter of a grain every two hours) at the end of twenty-four hours, and was followed by a small bowel movement. There was no abdominal distension at any time.

Forty-eight hours after operation the unusual symptom of hiccough developed and continued for a week, regardless of every remedy, including several doses of musk. It was always present except when the patient was sleeping. The gauze drain was removed on the third day and replaced by a rubber drainage tube, which was shortened from day to day and removed three days later. The drainage tract completely closed within forty-eight hours. The patient progressed well after the hiccough ceased, making a slow recovery.

Macroscopical Description.—The specimens were composed of two semi-cystic and multilocular tumors of the size of an adult head and large orange, and the Fallopian tubes.

The large tumor was removed from the right side. It measured 25, 18, and 14 centimetres in its various diameters. It was covered by a peritoneal capsule, which was smooth everywhere except for a few papillary masses growing on the broad-ligament surface of the pedicle and at the site of previous intestinal adhesions. Beneath the capsule large blood vessels (venous) were seen ramifying in every direction from the pedicle. The mass was composed of one large or chief loculus and perhaps twenty smaller loculi varying in size from a pea to an orange. The wall of the chief cyst was a thin peritoneal capsule, on the inner surface of which were papillomatous

masses, generally 5 centimetres in thickness, protruding into the cyst cavity. The papillomatous masses seemed to arise from the peritoneal capsule and were unusually compact. The greater part of the internal surface was covered with these masses. The contents was a clear, serous fluid.

The walls of the medium-sized loculi were for the most part the thin capsule, here and there covered with papillomatous masses of varying thickness. Some of the smaller loculi were free from papillomatous tissue. The tumor from the right side was, like the other, semi-cystic and multilocular, the loculi varying in size from a pea to a large walnut, and there were but few papillomatous masses on the inner surface. A few papillomata were seen on the outer surface, most frequently at the pedicle. This tumor measured 12, 10, and 8 centimetres in its various diameters. The Fallopian tube of the left side was normal. The right tube measured 8 centimetres in length and 1, 2, and 3 centimetres in diameter. The outer third of the isthmus was much enlarged and seemed to be filled with papillomatous masses, which protruded from the fimbriated extremity as a mass of papillomata and two minute cysts.

Microscopical Description.—Sections were made from various portions of the cyst wall and from the inner, middle, and outer thirds of the right tube, and prepared and examined by Dr. H. L. Williams.

Sections from the inner third of the tube showed nothing of special interest. The tube wall of the middle third was dilated into a very thin membrane. The lining epithelium had almost entirely disappeared, but where it still remained the epithelium had been proliferated into many layers. The epithelial cells were granular, irregular in size, took the hematoxylin stain deeply, and appeared like the atypical epithelium in the papillary serous cyst-adenoma of the ovary. In the outer third of the tube the histological picture differed greatly from the other portions described. The tube wall was greatly thickened and was made up of loose connective tissue, unstriped muscle fibres, and blood vessels of considerable size. Here, also, was considerable small round-cell infiltration extending out from the lumen. The lumen itself had been almost obliterated and was occupied by a growth made up of stroma tissue resembling the wall of the tube honeycombed by proliferating epithelial cells. Elsewhere two distinct systems of connective tissue and proliferated atypical epithelium, irregularly intertwined without any definite arrangement, were seen. From this section we could readily make a diagnosis of adeno-carcinoma. The sections made from the cyst walls showed within the capsule a loose connective-tissue stroma which was completely riddled with atypical glands or alveoli. These gland spaces were lined with low columnar epithelium, which in many places were separated one from the other by connective-tissue septa. In all of the glands the epithelium was more or less proliferated;

some of them were filled full with proliferating epithelium and broken-down cells. The tissue here showed an early stage of adeno-carcinoma. In other sections the epithelium was diffusely proliferated and had broken outside of the gland wall and was scattered throughout the stroma tissue. In many other sections the picture was simply that of the non-malignant papillary growth, the usual papillomatous tissue of the serous cystoma.

The second case, a primary adeno-carcinoma of both ovaries, was a patient under the care of Dr. Theodore A. Erck, who has very kindly given me the following history and allowed me to present the specimen.

M. C., American, white, housewife, 29 years of age, was admitted to the Gynceean Hospital on December 2, 1899. Her family history was negative. She had always enjoyed good health, except for an attack of diphtheria which occurred three months before coming under observation. The menstrual function first appeared at 16 years of age and occurred regularly and normally until two years ago. She was married when 22 years of age and is the mother of one child, now 6 years of age. She has had two miscarriages. Since the last miscarriage, two years ago, she has suffered with dysmenorrhea; the menstrual flow has gradually increased in amount and during the last year has been quite profuse. About three months before examination she noticed an enlargement in the right ovarian region, which caused her some pain. The pain was always aggravated at the menstrual period. Micturition was frequent and painful. She has complained of constipation for a year.

On admission to the hospital a vaginal examination determined the presence of two tumors, one on each side of the uterus, slightly cystic in character, irregular in outline, and intimately connected with the lateral wall of the uterus. The tumors could be moved with the uterus, and in many respects the growth resembled the multinodular fibroid tumor of the uterus.

Celiotomy was performed on December 4. On opening the peritoneal cavity the omentum was seen to be of normal thickness, but was here and there studded with small nodules the size of a pea, the lower border being covered with a fringe of such nodules. A great part of the diseased omentum was removed. The tumors, multilocular cystomata, the walls of which were composed of characteristic malignant tissue, the surface covered here and there with nodules like those in the omentum, filled the pelvic cavity on both sides, anteriorly and posteriorly, and in front of the uterus. Both tubes and ovaries (the tumors) were with some difficulty enucleated and removed. The uterus was slightly enlarged and contained a number of nodules on every surface. The surface of the bladder, the parietal and visceral pelvic peritoneum, and the sites from which the tumors were enucleated were covered by many malignant nodules. Since it was evident that a great part of

the malignant diseased tissue could not be removed, further operative procedure was abandoned and the abdomen closed. The patient made an uneventful recovery.

The first case is an instance of a papillary serous cyst-adenoma undergoing carcinomatous degeneration, and the second evidently a primary papillary adeno-carcinoma.

Macroscopical Description.—The specimens consisted of a multilocular cystoma of the right and left ovary, with the Fallopian tube of one side attached, and a section of the omentum.

The larger of the two cystomata measured 10, 8, 5, and 5 centimetres in the various diameters and was composed of a large number of small loculi and one large loculus. Half of the mass was solid tissue. The external surface was here and there covered with a peritoneal adhesion or a small papillomatous growth, and on the lower surface there was an area somewhat larger than a silver dollar, which was rough, granular, worm-eaten in appearance, and evidently was the portion of the tumor attached to the pelvic wall. Upon cutting transversely through the tumor we found the hilus infiltrated with the granular tissue above described and many small cystic cavities. To the naked eye the white granular tissue infiltrating the hilus appeared like a malignant growth. The Fallopian tube attached to this tumor was normal. The tubo-ovarian ligament contained a nodular growth the size of a bean. The smaller of the two cystomata measured 8, 6, 7, and 5 centimetres in its various diameters and was about the shape of a small potato. The surface was smooth in many places, but here and there were adhesions and a roughened, granular area similar to that on the other tumor. On section the cystoma in every way resembled that of the opposite side.

The general structure of the portion of omentum was thin and delicate, but there were numerous chains of large, whitish glands, varying in size from a small shot to a chestnut. These nodules had the typical appearance of a malignant growth.

Microscopical Description.—Sections from the tumors showed a stroma which was in places about normal, infiltrated with a glandular growth which at a glance was readily seen to be malignant. The glands were separated one from the other and surrounded by normal stroma. There was no direct infiltration of the stroma from the epithelium of the glands in most fields, but the epithelium was so proliferated within the glands that they were nearly filled completely. The glands were typical in shape and resembled in appearance those seen in adeno-carcinoma of the uterus. The epithelium did not take the stain well; individual nuclei were not distinct, and the cells appeared degenerated.

Many of the glands were filled with mucoid substance, and in a very considerable number small round bodies showing striations could be seen. Section of nodules from the omentum showed a fibrous stroma, infiltrated with atypical glandular growths similar to those described in the cystoma.

These tumors, according to Pfannenstiel, are not infrequent growths of the ovary. Half of the papillary growths of the ovary he has observed were adeno-carcinomata. This, however, is not the experience of other writers. For instance, Kelly has observed only two such tumors among twenty-seven papillary growths of the ovary. I have now seen four adeno-carcinomata among about twenty papillary growths of the ovary. The papillary adeno-carcinoma is usually composed of loculi of equal size (no chief cyst), surrounded and separated by solid tissue, from a half to three-fourths of the entire mass being solid. The loculi contain more or less of the papillary outgrowths. In half of the cases there are papillary growths on the surface, but such surface papillary growths are rarely of carcinomatous nature. In only one instance among twenty Pfannenstiel observed was this portion of the tumor carcinomatous. It is to be noted that in both of these cases above described the surface papillary growths were carcinomatous; that in the first case the papillary growths in the tube showed the most advanced carcinomatous change. In many papillary cyst-adenomata, where carcinomatous change is found, it is probable that the two diseases develop at the same time, as is shown in the second case. Where there is a large papillary cyst-adenoma, and carcinomatous change is found in only part of the tissue, the carcinoma is a secondary degeneration. As a rule the growths are bilateral, but do not develop at the same time. They may occur at any age, being observed as early as 8 years, but most occur between 30 and 50 years of age. Ascites develops early. There was no ascites in the above two cases. The growth is destructive. Metastasis takes place to the broad ligament, mesosalpinx, parametrium, vaginal vault, tube wall, uterus, rectum, cecum, also to the retroperitoneal lymph glands, in some rare cases to the inguinal glands. Further metastasis may take place, through the blood channels, to the liver, stomach, intestines, bones, distant lymph glands (supraclavicular), and other organs. Also, the lumen of the tube and uterus may be the seat of secondary metastasis, according to Riechel and as is shown in the first case reported. The chief metastasis, however, is in the peritoneum. The implantation of the papillary adeno-carcinomata on the peritoneum is locally exceedingly malignant, in that they grow deeply and produce new masses by way of the lymphatics, so that in advanced stage of the disease there is a general abdominal carcinomatosis.

In the later stages of the disease a cachexia develops and the patient dies from marasmus. The course and duration of the disease vary in each case; 89 per cent of the cases which survive the operation, according to Pfannenstiel, have a return of the disease and die during the first year. On the other hand, cases have been observed healthy ten years after operation. Pfannenstiel describes an instance where the patient was well four and a half years after operation. There was a

bilateral papillary ovarian carcinoma, uterine carcinoma and myoma. The operation was a total hysterectomy. I have myself observed a case of adeno-carcinoma in which there was no doubt of the microscopical malignant character of the disease, and the patient reported herself perfectly well three years after operation.

The cause of the great malignancy is the frequent intraligamentary development of the growths.

The pathology of these tumors shows that the surface papillary growths, and therefore also the secondary implantations on the peritoneum, are usually simple papillary growths, even where the tumor is itself undergoing carcinomatous degeneration. Statistics show that a small percentage get well when the carcinomatous disease is completely removed. The papillary serous cyst-adenoma with secondary implantation of the peritoneum does not necessarily mean that the disease will progress after the primary tumors are removed. Meinert reports a case well after eight years, Thornton one well after nine years, Lomer one after four and a half years, Baker Brown one after seven years, and Flaischlen a case where the patient was living after eleven years. I have seen a case where at the operation the parietal and visceral peritoneum was everywhere covered with millions of small papillary outgrowths; the primary growths were removed, and the patient has been well for more than four years. With these facts before us, it is self-evident that the indications for treatment in all papillary serous cyst-adenomata and adeno-carcinomata are radical, removing all possible diseased tissue. Where there remain papillomatous tissue or implantations on the peritoneum, we cannot be sure that they are of such malignant character that retrograde processes may not take place and the patient get well. For some time it has been my belief that the packing of the pelvic cavity, particularly over implantation areas, with sterile gauze would cause a reactive change and assist in the retrograde process. This was the object of drainage in the first case described. In the case above referred to as being well after four years in spite of the extensive papillary implantations, the pelvic cavity was packed with sterile gauze. The gauze could not be entirely removed for two months, and the irritation, inflammation, and probably infection (a staphylococcus) which must have taken place, I believe destroyed the papillomata and saved the patient's life.

I have thought that in those cases of papillary serous cyst-adenoma and adeno-carcinoma composed of one or two loculi, which are so adherent and incorporated with other structures that they cannot be removed, the opening of the loculi followed by such a gauze pack would at least lengthen the life of the patient and might, in the papillary serous cystoma, result in a cure.

I would therefore suggest that the loculi be opened and a large gauze pack introduced in all cases of papillary serous

cyst-adenoma and adeno-carcinoma where the cystoma cannot be removed; in all cases where even suspected adeno-carcinoma is localized to the pelvic peritoneum and the primary tumor is removed; and particularly in all cases where there are simple papillary growths on the visceral and parietal peritoneum. In the simple papillary growths, also, the presence of a large lymph gland, which can be removed, should not necessarily make a case hopeless, for it has been found that such metastasis in this disease may not extend beyond the lymph gland.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY.

Stated Meeting, December 19, 1899.

The President, JOSEPH E. JANVRIN, M.D., in the Chair.

LEAVING AN OVARY TO PREVENT REFLEX SYMPTOMS AFTER HYSTERECTOMY.

DR. E. E. TULL.—I would like to speak of two classes of cases which are of interest to me, viz., cases of hysterectomy in which the tubes and ovaries are removed as well as the uterus, and those in which an ovary has been intentionally left in the pelvis. During the past few years I have operated upon a number of cases in which I have purposely left an ovary, in order that the patient might be spared the unpleasant phenomena which usually follow the removal of tubes and ovaries with the uterus. Some of the cases were operated upon three or four years ago, and all of the patients have been free from the contraction of the vagina, acrid discharge, and nervous symptoms which are looked for after total ablation. In my first few cases I left one ovary at random, but lately I have stitched the ovary to the parietal wall in the iliac fossa with fine catgut or silk to prevent it becoming infected by contact with the dressing. All were cases in which the uterus was removed for fibroid. I have never seen a case of inflammatory disease in which I thought it possible to save an ovary.

DR. GEORGE H. MALLETT.—My experience coincides with that of Dr. Tull. I have left the ovary for similar reasons in two cases. One was operated upon a year ago, the other six months; both patients have been under constant observation, and so far they have shown fewer symptoms than do patients from whom all the organs are removed. I must say, however, that, in addition to leaving one ovary, I have been giving the patients ovarian extract, and I am unable to say how much of the good result is due to the drug and how much to the fact that one ovary was left.

DR. A. PALMER DUDLEY.—Leaving part or the whole of one ovary to prevent reflex symptoms is in the line of my conservative work. In two cases of hysterectomy I have left an ovary, or rather a portion of it, and in each case the patient has gotten along better than if everything had been removed. They have been free from the reflex symptoms and atrophy which usually attend total extirpation. I saw one of the patients to-day, and she is the picture of health. It is true that in one case the portion of ovary left in the pelvis inflamed and gave a little trouble soon after the operation, but fortunately this passed off soon. I would like to ask Dr. Tull if he has ever seen a case in which cystic degeneration has taken place in the remaining ovary.

DR. TULL.—One of the reasons why I brought up this subject is because of its importance from a medico-legal standpoint. A patient in whom I left one ovary and tube has recently threatened to sue me. I would like to know if any of the members have had a similar experience.

In reply to Dr. Dudley's question, I would say that I have not yet been obliged to perform a second operation for the removal of an ovary left intentionally. It is possible that this may be necessary at a later day. To my mind one is justified in taking this risk in order to ward off the symptoms I have mentioned. In regard to sexual feeling, I do not think that removal of the tubes and ovaries has any influence upon it.

DR. DUDLEY.—To leave in an ovary or part of an ovary is not only justifiable, but is a real advance in gynecological surgery. That which can be done with ovarian structure in the way of prolonging a woman's natural condition is yet in its infancy. I propose at the very first opportunity to transplant ovarian tissue from one woman to another. I know I can do it in my hospital practice without fear of the results, and I am going to try it. Of course it is possible that we may be misled by the gross appearance of an ovary, and thus leave some structure which will become cystic later on, but in the majority of cases no such mistake will occur.

DR. J. N. WEST.—In answer to Dr. Tull's question as to what should be the surgeon's course in the matter of removing or leaving an ovary, I would say that it has always been my endeavor to avoid sacrificing any organ which can be saved. I operated recently upon a case of double pyosalpinx and was able to save half of the right ovary. The patient made a good recovery, has continued to menstruate regularly, and has none of the troublesome reflex symptoms which follow removal of both ovaries.

ABDOMINAL HYSTERECTOMY; DEATH ON FIFTEENTH DAY.

DR. DUDLEY.—Not long ago I did a hysterectomy for fibroid of the uterus upon a case which was sent to me from Kingston. The patient was a single woman, 45 years of age. She was kept under observation in the hospital for a week before opera-

tion, her heart, lungs, and kidneys were examined, and she was pronounced a fit subject for hysterectomy. She was very stout. The vagina was much contracted, and the growth was so situated that it was necessary to operate from above. I severed the vaginal connections from below and then removed the uterus through the abdominal incision. The patient was put to bed in good condition. There was a stitch abscess, but the woman did well for fifteen days, when she was suddenly seized with severe dysmenorrhea one night and died within an hour. I was determined to have an autopsy and was obliged to make a coroner's case of it in order to obtain one. The result showed that death was not due to sepsis or to the operation. The heart wall was thin, the right side flabby, and the left side contracted; interstitial myocarditis was present; the lungs contained miliary tubercles, and the kidneys were the seat of acute diffuse nephritis. In addition to this, three of the largest gall stones I have ever seen were found together with forty smaller ones. There was no history of jaundice.

SIXTEEN FIBROIDS REMOVED BY MYOMECTOMY.

DR. WEST.—In February, 1899, I was consulted by a woman, 25 years of age, who had been married two years, but never pregnant. After marriage her periods had become irregular, sometimes skipping two or three months, and sometimes appearing every two weeks. Clots were passed and there was considerable pain. In July, 1898, the patient complained of severe pain in the abdomen. This attack followed a period and lasted about a week. She had a similar attack in January, 1899, but was not confined to her bed on either occasion. A diagnosis of subperitoneal fibroids was made, and operation performed March 18, 1899. An abdominal incision was made and the uterus brought up in position. It was then found to be studded with fibroids ranging in size from very small ones to those the size of a hen's egg. I threw an elastic ligature around the cervix and proceeded to remove the fibroids. Some were subperitoneal, some had pedicles, and others were buried deep in the uterine walls, from which they had to be cut. In all, sixteen fibroids were removed, the wounds being closed with catgut. Some little bleeding occurred, but this was easily controlled, partly by hot applications and partly by putting in sutures. The patient was put to bed in good condition. There was no shock and but little pain. Recovery was uneventful. Nine months after the operation the uterus was found to be normal in size, and no more fibroids have appeared. Two or three years ago I would have removed the uterus. Since then experience has led me to attempt to save the uterus in many cases in which formerly it would have been removed.

DR. MALLETT.—I am in favor of doing myomectomy instead of hysterectomy whenever it can possibly be done. I have removed several subperitoneal fibroids with success by the former method.

DR. CHAMBERS.—The prominence now given to myomectomy is a step in the right direction. It is not considered good surgery to remove organs which can be saved.

THE PRESIDENT.—During the past two years the tendency has been in favor of myomectomy instead of hysterectomy in cases in which fibroids can be removed with safety, and in which the uterus is not too large or otherwise diseased.

In regard to Dr. Tull's remarks, I would like to say here that for the past three years I have been in the habit of leaving the ovaries when doing vaginal hysterectomy for cancer, if upon examination they prove to be healthy.

A CASE OF GRAVES' DISEASE.

DR. P. F. CHAMBERS.—At the Obstetrical Society the other evening Dr. Polk reported a case in which he had removed part of the thyroid gland, and some discussion followed in regard to the effect which the thyroid secretion has upon women. I have now under treatment a case which is interesting in this connection. The patient is 45 years of age, who has not yet reached the menopause, and who for the past three months has given unquestionable signs of Graves' disease. The thyroid is enlarged and tender, and she suffers from tachycardia, the pulse beat ranging from 110 to 120 or 130. There is no exophthalmia. Lately she has been suffering from menorrhagia. I have examined her and find no cause for it. She has borne children, but is singularly free from laceration; there is no metritis or other uterine disease, and I can attribute the menorrhagia to nothing but the Graves' disease.

DR. E. L'H. MCGINNIS.—Since Dr. Polk read a paper on the use of thyroid extract in the treatment of fibroid tumor of the uterus, about two years ago, I have been much interested in the subject. I have employed this treatment in several cases, and in one the tumor has entirely disappeared. I cannot, however, state whether the result was due to the thyroid extract or to electricity, for both were employed. She suffered from menorrhagia and pressure symptoms. Both symptoms have disappeared. I told her frankly that I knew nothing personally about the treatment, but that Dr. Polk's opinion was of greatest value. She was perfectly willing to try the extract and took the tablets during eight months. At the end of this time she returned to the hospital for examination, and no trace of the fibroid could be found.

DR. MALLETT.—The menorrhagia of which Dr. Chambers speaks is a common accompaniment of thyroid enlargement. In looking up the literature of the case I find that Dr. Stahl, of Chicago, has collected sixteen cases, and this symptom was almost constantly present. I think that the thyroid secretion has some influence upon the pelvic circulation, and it is for this reason that thyroid extract is used to check uterine hemorrhage. I have never seen a fibroid disappear after the use of the extract. The treatment is difficult to carry out. The drug

is sometimes not well tolerated and does not always control hemorrhage.

DR. CHAMBERS.—In my case I concluded that the excessive thyroid secretion produced acceleration of the heart action and that this brought on menorrhagia.

DR. DUDLEY.—I have seen a number of aggravated cases of exophthalmic goitre. One of the patients, a woman, suffered from excessive menstruation and also from heart symptoms. We must remember that the nerve which supplies the heart is pressed on by the goitre, and that many of the heart symptoms are produced by the pressure made upon this nerve, caused by the various positions taken by the patient. The menorrhagia is also due to this cause, and in some cases the breast sympathizes for the same reason. Some years ago a friend of mine removed the enlarged thyroid in several cases. This has also been done by the great Swiss surgeon. I should not give thyroid extract in these cases. The stomach does not tolerate it well and it does not decrease the irregularity of the heart. On the contrary, it sometimes produces tachycardia. I have substituted the mammary extract in some cases, and it is wonderful how much better results are produced. One of the patients is the wife of a physician. I put her upon mammary extract and she now menstruates regularly.

In a paper read before the Maine State Medical Association recently it was stated that patients from whom the thyroid is removed lose their hair and beard. They also lose flesh until they are put upon thyroid extract.

THE PRESIDENT.—I have removed the enlarged thyroid in two cases. In one case the operation was done twelve years ago. The patient was 40 years of age. No unpleasant symptoms followed. I attribute the irregular circulation in cases of thyroid enlargement to pressure more than to anything else. Two years ago I assisted in removing an immense thyroid from a robust man about 29 years of age. He has been in perfect health ever since. Previous to the operation he suffered very greatly from dyspnea.

DR. GEORGE H. MALLET then read the paper of the evening, entitled

MEDICAL LITERATURE OF TO-DAY.

DR. WEST.—I think there are two sides to this question, although Dr. Mallett deserves credit for some original thought upon the subject. The tendency of the age is toward a flood of literature of all kinds, medical and otherwise. The facilities afforded by the *Index Medicus* are such that if a man will take the time to study up a subject he can write a fairly good paper. Fortunately, medical societies demand that members shall write papers and report cases at their meetings. I do not know of anything more improving than to write a paper.

Of course not all papers are worthy of publication, and in some cases it is necessary to do a good deal of pruning and editing. We have our solid text books to which we can refer for exact knowledge, but the bringing-up of subjects by the papers read at medical meetings, and the discussions which follow, keep matters fresh in the minds of the members. Even papers which are not worthy of publication sometimes call forth something which is new and therefore serve their purpose. Taking a broad view of the subject, it seems to me that a large number of papers is an advantage rather than a disadvantage. For instance, take this Society. If we confined ourselves to original papers we would not hear many read. The reason for this is that original work is very scarce. It is said that only one per cent of the articles in the *Index Medicus* are papers on original work.

DR. L. GRANT BALDWIN.—Dr. West has voiced my sentiments exactly. If we were to admit only strictly original papers we would not hear many read. I think men should be allowed to report the results of their own work and personal experience, even if it is not original. Methods and technique differ, and such reports would be of benefit in showing the results obtained, even though there was nothing original.

DR. DUDLEY.—If I were obliged to spend my time in perusing nothing but thoroughly scientific papers, I do not think I would read much medical literature. The average practitioner is a busy man and has not time to read long papers in order to get the meat that is in them. Medical societies to-day afford a rapid-transit method of keeping up with medical matters. We attend the meeting of a medical society and pick up some little point which we can put into practice. One cannot expect every man to get up a scientific paper on original work, for it takes a man two or three years to produce such a paper—he has got to prove his ground. Medical literature to-day is not so much original scientific work as it is happy thoughts which go around in a circle and add some little points which can be put into practice and are of benefit to all.

As to medical men owning medical journals, I do not think this is possible at the present time. The *Journal of the American Medical Association* is owned and published by medical men, but it is rarely read by any but those who are members of the Association. I do not think it is possible for a medical man to conduct a medical journal and practise at the same time, and do both well.

THE PRESIDENT.—I rather inferred from the title of the paper that “medical literature” referred to the articles published in medical journals and not to the discussions which take place at medical society meetings. I think the author’s position is a correct one. The propriety of publishing many papers which appear in our journals is open to criticism.

DR. MALLETT.—I would like to state that if I gave the impression that discussions in medical societies should be limited,

I did not intend to do so. The statement I made is that it is not wise to publish all papers which are read. Nor did I say that every paper should deal with original work, but that it should contain some original thought.

DR. GEORGE T. HARRISON.—I did not have the pleasure of hearing the paper, but perhaps that is no reason why I should not discuss it. At least, no one can accuse me of criticising the author's views. I have no doubt, however, that he takes the position that it is a pity that we do not have better papers. This is true, and it is usually difficult to separate the wheat from the chaff. Take up any medical journal you choose, and for one good article you will find a dozen bad ones. Editors must have a certain amount of material and do not always consider the quality of the matter. Moreover, they are often influenced by the reputation of the men who wrote it. Often these articles are written hurriedly and are not of much value. At the same time I think that every man who has something which is worth bringing before the profession should not be deterred from writing by the fear of adverse criticism. I know men who do not write papers because they say they have not time, yet medical literature is suffering from a lack of their papers.

PERNICIOUS ANEMIA.

DR. HARRISON.—I recently saw an interesting case of pernicious anemia. The patient was a young married woman who was eight months pregnant. Her pallor was extreme and she had obstinate and persistent vomiting. She was unable to digest food, and her condition became so alarming that I considered the advisability of terminating pregnancy, but did not do so because I feared it would cause death. I was relieved of my embarrassment in a short time by labor setting in of its own accord, as usually happens in these cases. Her pains were good, but toward the last she became very weak, so I applied forceps and delivered her. It was easy to do this, for the head was on the perineum, but before I could deliver the placenta the patient died. The prognosis in these cases is almost hopeless, and, fortunately, they are very rare. It has been said that pregnancy should be interrupted, but, so far as I know, no great success has attended such a procedure. Pernicious anemia is not like eclampsia. In the latter condition the kidneys return to a normal condition after labor is induced. The child was dead, and its death was probably the cause of premature labor. The pernicious anemia had probably lasted for some months, and the patient's husband, who was a drug clerk and an intelligent man, had been trying to build her up by giving her nourishing food and tonics. The patient had not been able to retain and digest sufficient food to carry on the function of life.

I do not think that infusion would have more than a tempo-

rary effect in such a case. The condition cannot be compared with that which is the result of loss of blood in a healthy person. In the latter event the power of regeneration is so great that it is only necessary to fill the blood vessels, while in pernicious anemia the blood-making processes are at fault.

DR. DUDLEY.—I do not like to advocate a proprietary remedy, but I would like to say that in the Harlem Hospital, where we see many cases of pernicious anemia as well as of anemia due to hemorrhage from the stomach and to postpartum hemorrhage, we give the patients Carnogen. We also infuse them. The blood is examined daily, and by these means we have been able to increase the number of blood corpuscles two per cent.

For the persistent vomiting of pregnancy there is no remedy so good as cocaine. I am in the habit of giving it in capsules in order to avoid the unpleasant effect which it produces in the throat—a half-grain of cocaine to three of monobromate of camphor, the latter being added to offset the bad effect of the cocaine. I have found that this will invariably stop the vomiting.

DR. MCGINNIS.—I would like to learn from the other members whether they have had any experience in the use of cocaine in the treatment of obstinate vomiting. I have spent a good deal of my time at sea, and the question of the treatment of seasickness is of interest to me. Summer before last my attention was particularly directed toward this by a case in which vomiting was so violent that some of the small blood vessels in the stomach were ruptured. The surgeon of the steamer told me that ninety per cent of all persons going to sea for the first time are seasick for twenty-four hours and then recover. In the case in which seasickness persisted longer than this, he said he had been in the habit of prescribing cocaine, one-eighth of a grain, in solution by mouth, three times a day. I have seen this used with marvellous results.

DR. WEST.—When I was in a general hospital in 1891 cocaine was the stock remedy used to check vomiting when other remedies failed. It was administered in the form of a pill containing one sixth of a grain of the muriate.

DR. HARRISON.—I have used it in the vomiting of pregnancy.

DR. CHAMBERS.—I think it is recognized everywhere as a remedy for nausea.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, November 3, 1899.

The President, S. S. ADAMS, M.D., in the Chair.

DR. J. WESLEY BOVÉE showed a pair of

IMPERMEABLE RUBBER OPERATING GLOVES, A PAIR OF
OBSTETRIC GLOVES, AND A PAIR OF GAUNTLETS
REACHING TO THE ELBOW.

In speaking of the gauntlets he said instruments frequently touch the arms in being passed over, and the gauntlet prevents contact with the skin. Although the gloves will stand sterilizing by heat, he uses a one per cent solution of tricresol. The gloves are made by the Miller Rubber Company, of Akron, Ohio. Before putting on the gloves he lubricates them with sterile glycerite of starch.

DR. G. WYTHE COOK said he knew a country doctor who had used the rubber gloves in obstetric practice over twenty years ago.

DR. H. L. E. JOHNSON said he had used the gloves once and found the tactile sensibility very much diminished, and although it was a syphilitic case and he had a cut on his finger, he had abandoned the gloves. He found the gloves had a tendency to roll over the finger in a roll, which caused some embarrassment.

DR. W. M. SPRIGG had used gloves several times and found the sense of touch not materially interfered with.

DR. J. THOMAS KELLEY, JR., read a paper entitled

MALIGNANT TUMORS OF THE KIDNEY IN CHILDREN.¹

DR. G. N. ACKER said that he had searched through the records of the Children's Hospital, but had not found a case of malignant disease of the kidneys. He had seen a case several years ago in a young man at the Garfield Hospital, where the entire kidney substance was destroyed. From what he has observed and read he does not think that metastasis occurs as often as Dr. Kelley states in his paper. The earlier pathologists (Billroth, Rokitansky) placed these tumors under the carcinomatous growths, and A. Jacobi, in 1884 Medical Congress at Copenhagen, was the first to point out the fact that the most

¹ See original article, p. 200.

of them were of a sarcomatous nature. The majority are of congenital origin, and as a rule we first observe them in early childhood under 3 years of age. Sex does not seem to have any influence. Cohnheim's theory (misplaced embryonic tissue) best explains the etiology of the disease. This can be stimulated to proliferate by traumatism or some acute disease, such as scarlet fever. The symptoms most found, besides the tumor, are changes in the urine, progressive cachexia, and gastro-intestinal disturbances. Taking the location of the tumor into consideration with the hematuria, age of the patient, and rapid growth, the diagnosis can be made with some certainty. The prognosis, if the diagnosis is made early in the disease, is not hopeless, for a number of operations have been made with success.

DR. J. WESLEY BOVÉE said that tumors of the spleen had two or three notches which could be felt. He had one now under observation at the Columbia Hospital. From dermoid of the ovary it can be diagnosed by the slow growth of the dermoid. The successful surgical treatment consists in seeing the case early. Death occurs in a very short time without operation. In 74 cases that were operated on, 27 died immediately of the operation, 28 died of recurrence, only 4 were cured. To effect a cure the case must be seen in the first or second month. After six months operation is inadvisable. If a child complains of pain in the lumbar region, it should be examined, and if a small tumor is found operation should be done immediately. Pain, hematuria, and tumor are the principal points in the diagnosis. The incision should preferably be made in the median line, so that all metastases can be seen, also if there is another kidney. For small tumors the incision should be made from the cartilage of the ribs to within an inch and a half of the iliac spine. The space is usually very small in children. Halsted made a transverse incision in one of his cases. The mortality is about 75 per cent. Dr. Bovée thought the operation had not been successful.

DR. ACKER said Abbey performed two successful cases for Holt, and two years afterward they were both doing well. Osler also reports a successful case.

DR. S. S. ADAMS asked Dr. Bovée if, according to his ideas, a general practitioner were to find such a case, would he be justified in having an operation performed?

DR. BOVÉE said, make an exploration at least, and if possible take out the tumor.

DR. BALLOCH said we should not wait for hematuria, for this occurs late, and its absence should not make us hesitate in the diagnosis.

DR. ADAMS said he had observed that the cases reported in New York were by those physicians who attended large numbers of Russian Jews.

DR. BOVÉE said one of Halsted's cases was a Russian Jew.

Stated Meeting, Friday, November 17, 1899.

The President, S. S. ADAMS, M.D., in the Chair.

DR. STONE presented

SECTION OF THE LARGE BOWEL WHICH HAD BEEN EXCISED
FOR MALIGNANT STENOSIS.

The patient was a colored woman, age about 30 years, who had been admitted into Columbia Hospital for operation September 25, 1899. She had been married twelve years; had three children, the youngest being 11 years old. She had pain in the pelvis, chiefly on the right side and in the region of the uterus. She had been constipated for years and constantly required some form of laxative. The uterus was retrodisplaced and somewhat adherent, being held down by an enlarged tube and ovary on the right side, the result of an old salpingitis and ovaritis. The ovary was enlarged and the seat of cystic degeneration. Operation September 26, 1899; the uterus and adnexa freed and brought into position, and the right ovary and tube removed. A mass behind the uterus proved to be a stenosis and thickening of the sigmoid at its junction with the rectum. Owing to the apparently small opening in the gut and its supposed malignancy, the diseased portion was removed and an anastomosis was done with the aid of a Murphy button. The button and the portion excised were presented. The patient was quite weak after the operation, but has since recovered. The button was passed by the patient in two weeks after operation. The patient was in hospital four weeks and two days. The slide herewith presented shows the disease to be adenoma.

DR. J. WESLEY BOVÉE presented

TWO SPECIMENS OF TUBAL ABORTION, AND ONE OF A SEVEN-
POUND DEGENERATED UTERINE FIBROID COMPLICATING
A THREE-MONTHS PREGNANCY.

The first specimen of tubal abortion was removed in April, 1899, from a young woman upon whom he had operated one year before for pelvic adhesions, closure of the fimbriated ends of both tubes, adhesions of cystic ovaries, and retroversion of the uterus. She had been married five years without becoming pregnant. Although suffering as much as is usual from these conditions, it was a hope of relief from sterility as much as from the pathological condition that prompted her to have the first operation. The adhesions were separated, the cystic ovaries resected, the tubes stitched open, and ventrosuspension of the uterus done. In February, 1899, she considered herself pregnant, having missed two periods, and, complaining of considerable pain in the left side of the pelvis, consulted him. He found a small mass to the left of the enlarged uterus that he

concluded was an enlarged ovary, and decided the uterus contained a fetus of about two months' gestation. A few days later she was attacked with severe pelvic pain and collapse. He saw her a few hours later, finding some flow of blood from the uterus and the patient evidently in severe pain. The pulse was nearly normal. Opium was administered and the patient's condition watched. The pain and flow continuing, a diagnosis of ruptured tubal pregnancy was made. It was not until a week later that any evidence of a hematocele was present. He kept her under observation until April, when, the mass continuing and the patient not improving, the abdomen was opened. A largely distended outer half of the left Fallopian tube, half the ovary, and some blood clots were removed. The tube stump was sutured open. The suspensory ligament showed nicely, as he had found in other cases. She made a splendid recovery, but has not since been pregnant.

The abdominal ostium of the half-tube removed was dilated an inch, and bulging through it was a blood clot. It appeared like the dilating cervix in abortion. The tube was not ruptured, but was dilated to a diameter of about two inches by a blood clot in which were found chorionic villi by Dr. J. J. Carroll.

The second specimen was successfully removed October 30, 1899, from a single girl, 16 years of age, who was sent to him for an operation for pyosalpinx. She had missed one menstrual period, and then followed great pain with uterine hemorrhage intermittently for the six weeks supervening before operation. The tube removed, with its ovary, very strongly resembled the specimen just presented, and, according to Dr. Carroll's report, contained chorionic villi.

The seven-pound fibroid was nearly dumb-bell in shape, laid transversely across the abdomen, which it distended bilaterally. It was attached by a pedicle, one inch long and three inches by one inch in diameter, to the posterior surface of the fundus and extended to above the umbilicus. The patient was 31 years of age and married less than four months. The pain was excruciating, and the night before operation three-fourths of a grain of morphia hypodermatically failed to sufficiently relieve her to induce sleep. The three-months pregnancy was not interrupted by the operation, and the normal appendages were not handled. Several very small fibroids were found in the uterus, but great care was exercised to not touch this organ. Her pain was entirely relieved by the operations; she sat up on the fifteenth day and left the hospital on the twenty-second after operation. In this case he made use of a suture which, so far as he knows, is new for closing the abdominal wound. The peritoneum was first closed by a continuous catgut suture. Then by interrupted silver-wire sutures, placed three-quarters of an inch apart, the remainder of the tissues were apposed. They were introduced as follows: A Kelly needle armed with a carrier was introduced into the left side of the incision just beneath the skin, passed an inch parallel to it,

then dipped down, taking in considerable of the rectal fascia or sheath, nearly as much of the rectus muscle, and then, lightly gathering in the deeper part of the sheath of the rectus, was carried on outward on the right side of the incision in a reverse order. When these wires were twisted they perfectly approximated the fasciæ and the skin edges, and the twists came out through between the flaps. They were cut off about one inch from the skin, and on the fourteenth day removed by slightly untwisting at the inner end of the twist, cutting and pulling out as ordinary interrupted sutures that are made to penetrate the skin. They left a perfect, thin-lined cicatrix. Dr. Carroll found the tumor to be a fibroid and its centre breaking down.

DR. BOVÉE congratulated Dr. Stone for exercising such care in operating that the cancer of the bowel was found. Dr. Kelly, of Baltimore, examines every portion of the peritoneum during the operation. The advantage presented by the abdominal route in this case is well taken, but there are certain conditions in which the vaginal route is appropriate. Dr. Pryor would not have found the disease in Dr. Stone's case and the patient would have died of adeno-carcinoma. The vaginal route is applicable to recent pus cases and large collections of pus which can be emptied by vaginal incision.

DR. STONE said tubal abortion was first described by English surgeons, among whom is Lawson Tait. On one or two occasions the diagnosis had been made at the Columbia Hospital. He had presented specimens, but no chorionic villi had been found. Dr. Bovée's specimens were the first he had seen where the microscope had proved the diagnosis. The removal of the fibroid was good surgery. Cystic degeneration begins when the pedicle becomes attenuated and the blood supply diminishes. If the patient had been allowed to go on without operation, adhesions would probably have formed to the omentum and other organs, Nature so endeavoring to supply nourishment. Sometimes such tumors drop off or undergo calcareous degeneration.

DR. W. S. BOWEN said the fibroid must have grown very rapidly since pregnancy, and asked if anything were known definitely as to just how much it had increased in size during that period.

DR. JOSEPH TABER JOHNSON congratulated Dr. Bovée on his diagnosis of the pregnancy in the fibroid case and on the result. He was glad to see that Dr. Bovée had come to believe in the vaginal route, since he had so severely criticised his paper on this subject some time since in this Society. Dr. Stone's operation could not have been done through the vagina.

DR. BOVÉE said his patient had noticed a small nodule in the iliac région and that it had increased very rapidly in size during the last four months; but he did not believe it had grown so rapidly, but that she had noticed it more since pregnancy. Speaking of the migratory habits of these tumors, they

often get their blood supply altogether from neighboring organs. He had not objected to Dr. Johnson's *operations* through the vagina, but to vaginal puncture. He makes a circular incision. After abdominal operations he frequently makes an incision through the vagina when he fears there may be loss of blood. Diagnosis of tumors was not made at first, but afterward he could feel the pedicle and uterus. He operated at this time to save the pregnancy. The circulation in the growth was less than that in the uterus. He does not know if the tumor shared in the increased blood supply.

DR. J. T. JOHNSON called attention to a paper read in the Medical Society, in which a case was reported where the tumor, fetus, and all were removed.

DR. I. S. STONE read the paper, entitled

THE SURGICAL AND MECHANICAL TREATMENT OF
DYSMENORRHEA.¹

DR. J. T. JOHNSON said all of the writers have been hammering at dysmenorrhea, but have not arrived at any routine treatment. One of the causes of failure is that we dilate without having made the diagnosis of stenosis. If we do dilate and put in a stem pessary we only relieve one of the causes, while all may be present. He is surprised that the dilatation persists so long; after delivery the os comes back to size early. After dilatation he puts in a stem pessary and leaves it in for a week, and he gets good results. He removes the pessary when the patient leaves her bed. The question is one of diagnosis. We all agree with the essayist as to the non-examination of school-girls, but we cannot leave these girls to suffer. He has seen them roll on the floor and resort to gin and morphine. Lots of these girls are hothouse plants, anemic, neurasthenic, and hysterical, but some of them do have obstruction. The surgeon ordinarily promises too much and brings the operation into disrepute, not having made a complete diagnosis. Frequently the operation is done hurriedly, the uterus is sometimes punctured and the cervix torn. Kelly speaks of several cases of puncture and loss of life. The operation should be done by a competent man, and the cavity curetted when necessary. He has seen men dilate the uterus with one squeeze of the dilator. He also saw a case that had been dilated in a dispensary and sent home as cured immediately after. If a flexure is present the blood collects and is forced out by a pain; generally some remains and with the mucus sets up an endometritis. These cases should be curetted. If proper precautions are taken the operation should not be dangerous. The operation of cutting backward is not done so much now. Wilson reported 400 of such cases for stenosis and stricture. We will not gain much until we make a more thorough diagnosis, even if we have to give an anesthetic, though he does not believe this is necessary as a rule.

¹ See original article, p. 187.

DR. J. WESLEY BOVÉE said dysmenorrhea will occur from general and local conditions—anemia, hysteria, and neurasthenia are all conditions producing dysmenorrhea. A debilitated girl will have dysmenorrhea or menorrhagia. In many cases a condition of the ovary will produce dysmenorrhea, as sclerosis. A Graafian follicle has difficulty in rupturing through the ovary. He particularly remembers one case at Columbia Hospital. Dr. Murphy had permitted him to operate. The patient was refused operation at first, but afterward returned and demanded it. She soon became well and strong. Dr. Gray examined the ovaries and said the thickened and indurated albuginea rendered rupture of the Graafian follicle very difficult. Dr. Bovée referred to a paper written by Humiston, of Cleveland, on the subject of diseased ovaries causing dysmenorrhea. In these cases you may do all things but removal of the ovaries, and you will not cure the patient. In endometritis you must curette. If the uterus is posterior there is formed a kind of cul-de-sac, which is very hard to reach with the curette unless the uterus is pushed up. He has been very much pleased with the results of dilatation and curetting. After dilatation a thorough curetting should be done, and there is no additional danger from the latter. He does not believe so much in the use of the stem. Wash out the cavity well and we get better results without the stem, which often sets up an inflammation in the broad ligaments or causes the growth of connective tissue. He does not believe in slitting the cervix. If the incision does not close you get cicatricial tissue; and if it does, no result is obtained. If retroversion is present introduce a proper pessary at the time of the operation. He emphasized Dr. Johnson's plea for diagnosis and said the operation must be done cleanly and completely.

DR. THOMAS C. SMITH said the treatment of dysmenorrhea by surgery is a very contradictory and uncertain procedure. He tries to do as much good with as little harm as possible. He had stated several years ago that he had never seen any good follow forcible dilatation of the cervix. Now Dr. Stone says he has relegated to obscurity the dilatation and curetting of the uterus for dysmenorrhea. He thought the Outerbridge stem the most barbarous instrument to put in a woman, for on taking it out after several days it pulls out with it all the mucous membrane of the uterine cavity. Dudley's operation calls to mind the old saying relating to American gynecological surgeons, "one half are engaged in slitting the cervix and the other half in sewing it up." He had never seen any patient benefited by forcible dilatation of the cervix. He had been waiting for something to turn up by which these patients can be cured. He made a practice of treating these cases with small tents of slippery elm. He introduced it a week before the expected flow, and two days after he introduced another. The menses come on sooner, and she is over it before she knows it and without pain. In a case of dysmenorrhea he introduced a tent, and she had no pain for the first time in years; after a

few months' practice with the tents he told her not to come back, and she remains cured. He claimed that he subjected his patients to less danger and he does more good than by operating.

DR. BOVÉE asked Dr. Smith, in treating a woman who expects to become pregnant, would he not fear to break up the pregnancy by the routine treatment of the tents, and also how he made his tents sterile. The speaker cited a case of pus tubes following the introduction of a tent, and expressed the opinion that it was the direct cause.

DR. H. B. DEALE said the placing the pus tubes to the credit of the tent looked too much like jumping to a conclusion.

DR. I. S. STONE said a small sound passed just before the expected flow will often do good. He also spoke of the effect of climate on some of these cases. He cited a case of a woman who suffered with dysmenorrhea, and the finger could be passed up to the fundus in the uterus. If Dr. Smith could introduce a tent it showed that there was no stenosis. Not many young women with an ante flexion need an operation. Cure the patient of neurasthenia and exclude ovarian disease, and few cases will need surgery.

Dr. Stone, in closing, said that he did not deny that his paper appeared to allude to the general subject of dysmenorrhea rather more than to the particular form due to stenosis or obstruction; but if such were the case, it was for the purpose of showing the comparative rarity of these cases of stenosis, which really demand surgical or mechanical treatment. He always found men treating very difficult cases as though due to obstruction. He had briefly called attention to the importance of making careful diagnosis, and had urged the administration of anesthesia in those cases having resisted treatment of the ordinary kind. He could not see why an anesthetic should not be used, as evidently such a course favored accurate diagnosis. He found many men did not appear to have definite ideas about what stenosis meant. He was not present to discuss those cases admitting a large sound or, as mentioned by Dr. Smith, pieces of slippery elm made into tents. He did not consider these cases really obstructive or due to stenosis. Finally, he did not think it incumbent upon him to say what he would recommend specifically for dysmenorrhea of the kind usually seen in practice, as it would involve the discussion of medical, hygienic, climatic, electrical, and other methods of treatment.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Proceedings of the Twelfth Annual Meeting, held at New Orleans, La., December 5, 6, and 7, 1899.

MYOMATOUS TUMOR OF THE EXTERNAL ILIAC VEIN, WITH REPORT OF A CASE.

DR. A. M. CARTLEDGE, of Louisville, Ky., presented a paper with the above title. Myomatous tumors arising from the muscular coat of the veins constitute one of the rarest of pathological curiosities, as a faithful search of the literature by the essayist discovered but two cases reported. A brief report of these was given. His own occurred in a woman aged 53 years. Five years ago the patient suffered from swelling of the left leg, extending from foot to hip; it came on gradually and the limb attained a considerable size; the swelling subsided in eight or ten months. She had pain at this time in the left iliac region, low down. No enlargement was noticed. Two years ago the patient noticed a small lump just above Poupart's ligament on the left side, from which she suffered some pain. Within the last year the pain had been much greater in the left iliac region and the enlargement more distinct and very hard; latterly she had been losing much flesh. She had slept poorly on account of pain, and also suffered from accumulations of gas in the bowels. A diagnosis of carcinoma of the deep inguinal glands above Poupart's ligament was made, probably due to some primary, yet undiscoverable carcinomatous lesion in the bowel or uterus. Exploration of the iliac tumor was advised for a more positive diagnosis, and removal if found expedient. This was accepted, and the operation was performed on March 9, 1899. The operation consisted of an incision five inches in length, beginning near the external abdominal ring, and running one inch above and parallel with Poupart's ligament, which came in contact with the tumor after opening the fascia of the external oblique muscle. The anterior part of the tumor occupied the inguinal canal. The round ligament was easily identified in front of the tumor, occupying the most fantastic relation to it, wound as it was in and out around several lobules of the tumor; it was separated easily and pushed to the inner side. It was now seen that the tumor was not of glandular origin. By blunt dissection it was gradually freed from its upper and lower and external bed. The outer and deeper attachments were approached with great con-

cern, as they were evidently in the closest relation with the external iliac vessels. Up to this time no vessels of importance had been encountered. It had been expected to meet with the deep epigastric, but it nowhere appeared. Gentle and careful blunt dissection carried the pelvic peritoneum upward, no buttonholing of the same occurring. After reaching the base and upper and outer part of the growth, the external iliac artery could be plainly felt entering the tumor. Search to the inner and posterior aspect of the artery failed to demonstrate definitely the vein; nothing more than a fibrous thickening could be made out, which was lost in the tumor substance. The point at which the external iliac artery entered the growth was about two inches above its lower termination. The apparent obliteration of the vein, and its elimination as a factor in any surgical procedure affecting the circulation of the limb, determined the operator to ligate the artery half an inch above where it entered the growth. The fibrous remains representing the vein were similarly treated. The tumor was now separated from above downward, the deepest projection being disembedded from the obturator foramen; it now remained only attached to the vein and artery beneath Poupart's ligament. These were freed from the surrounding structures by blunt dissection and were ligated separately, and the tumor was removed. In cutting the vein below where it entered the growth it was manifest that its lumen was almost obliterated, barely admitting a good-sized needle. The tumor was removed entire, with not a lobule broken, and passing through it and removed with it were one and three-quarter inches of the external iliac artery, and the same length of the nearly obliterated vein. The only hemorrhage of any account was from the obturator vein where it passed through the foramen; this was easily secured by ligation. The vessel was much enlarged as a result of participating in a long-established collateral venous circulation. The upper portion of the incision was closed by tier sutures, the lower portion being left open and being occupied by a gauze drain, which was placed down to the obturator foramen. The patient was progressing toward recovery.

DR. WILLIAM E. PARKER, of New Orleans, referred to the difficulty of diagnosing tumors below the groin.

RECTO-VAGINAL FISTULA.

DR. LEWIS S. MCMURTRY, of Louisville, Ky., read a paper on this subject. He said that, excluding cancer extending from the cervix uteri, recto-vaginal fistula was due to traumatism—not to the compression of the tissue as in vesico-vaginal fistula, but to extensive rupture of the perineum involving the recto-vaginal septum, cicatrizing inferiorly, but leaving a perforation above where the septum was thin and permitted contact of the vaginal and rectal mucous membranes, thus uniting these membranes and making a permanent opening. Wounds

made in instrumentation through the vagina, and the pressure of foreign bodies retained in the vagina sufficiently long to produce ulceration and necrosis, were among the rare causes of this lesion. The most common site was in the lower portion of the vagina, just above the sphincter muscles, and at the point already indicated where the septum was thin and the mucous surfaces were in close proximity one to the other. The opening was usually very small, and the mucous membrane was reflected around like a fringe, making its detection more amenable to touch than to sight. The method usually employed in the repair of vesico-vaginal fistulæ, whereby the edges are freshened in a funnel-shaped denudation, would rarely succeed in repairing a recto-vaginal fistula. The action of the anal sphincter, the penetration of fecal matter, and the sparse layer of tissue prevented repair by this method. The divulsion of the sphincter muscle would not suffice, in the larger proportion of cases, to overcome this obstacle to success. Extensive cicatricial deposit was another obstacle to repair by this simple procedure. The operation in consequence was resolved into a modified perineorrhaphy, by which the fistula was transformed into a complete tear of the perineum. The method of flap-splitting popularized by the late Lawson Tait was pre-eminently applicable to this procedure. By this method broad surfaces were supplied without loss of tissue, permitting gliding of the vaginal and rectal orifices of the fistula so as to interpose firm and healthy tissues. In exceptional cases in which the fistula was so low down as to be within the grasp of the sphincter, it would be best to divide the septum vertically, freshening liberally the margins of the fistula, and suturing the surfaces as in complete laceration of the perineum. In a very limited class of cases in which the fistula was small and the cicatricial deposit was not extensive, a simple denudation and suturing, after divulsion of the sphincter ani muscle, might succeed. The flap-splitting method already mentioned would be found most applicable and should be preferred for general application. Vertical division of the septum should be the first step of the operation in low fistulæ with extensive cicatricial deposit, and the operation was then resolved, after paring the edges of the fistula, into the operation for complete tear of the perineum. It would rarely be necessary to use buried sutures; when used, these should be of catgut and should be introduced after the Lembert plan. As already stated, the flap-splitting operation of Tait has the greatest field of usefulness in this procedure. The following case was of special interest, both on account of the unique cause of the fistula, and the consequent deduction that a very simple and common gynecological appliance was not without danger under certain circumstances.

Miss C. W., age 31 years, never married, a teacher, was subject to a backward displacement of the uterus. In August, 1899, she applied to a physician for treatment, and a metallic pessary of the Hodge pattern was inserted. The pessary was placed in position on a Thursday by the physician who had

referred the case to Dr. McMurtry, and the patient returned to her home, some thirty miles distant from the physician. On the second day the patient began to suffer pain, which increased day by day, and when she was examined by the physician on the Monday following the pessary was found protruding into the rectum and was removed per anum. When the patient was referred to him on October 6 there was an opening in the recto-vaginal septum just above the anal sphincter, of oval form, that would readily admit the end of the little finger. The operation consisted of divulsion of the sphincter, separation of the vaginal mucous membrane, freshening the edges of the fistula, and suturing with Lembert sutures of catgut the rectal portion of the fistula, gliding and suturing the vaginal mucous membrane. Union was prompt and perfect, and the patient was now quite well.

In the discussion cases of recto-vaginal fistula were reported by DRs. T. J. CROFFORD, of Memphis; GEORGE BEN JOHNSTON, of Richmond; GEORGE H. NOBLE, of Atlanta; W. D. HAGGARD, JR., of Nashville; and J. WESLEY BOVÉE, of Washington, D. C.

DR. C. JEFF MILLER, of New Orleans, read the report of an interesting case of what he and others considered an

OSSIFIED UTERUS.

He presented the specimen.

TWO CASES OF INTRALIGAMENTOUS CYSTS.

DR. T. J. CROFFORD, of Memphis, reported the following:

Case I.—Miss T., age 50 years, presented herself with an abdominal tumor July 1, 1899. A few days later the abdomen was opened. The tumor was found to be an intraligamentous cyst. Both ovarian arteries were ligated; the uterine artery was ligated upon the healthy side at as low a level as the internal os. The uterus was cut across; the uterine artery was secured upon the tumor side, and the enucleation of the tumor proceeded with. The loss of blood was considerable, although the enucleation was done rapidly. Several arteries in the broad ligament required ligation, and one or two deep down in the pelvis needed to be secured before hemorrhage was under control. The cavity was obliterated as much as possible by suturing together the two layers of the ligament. The woman recovered.

Case II.—Mrs. S., age 42 years, presented herself with an abdominal tumor October 31, 1899. During the month of June last she experienced an attack of acute peritonitis which came near terminating her life. The acuteness of the attack subsided, but a chronic peritonitis had existed ever since. Abdominal section was made November 6. There were found two tumors, one on each side, developed between the layers of the broad ligaments. The ovarian arteries were secured near

the brim of the pelvis. The tumors, which were not of very large size, were separated from the uterus as far down as the operator dared, and the uterine arteries were secured as low as possible after the cysts were emptied. The hemorrhage was alarming at every attempt at enucleation upon all sides. The larger vessels in the broad ligaments and walls of the cysts, several in number, were therefore ligated. The upper portion of the sacs was trimmed off and covered with peritoneum. After the oozing had stopped, the abdomen was closed without drainage. The patient had had an uninterrupted convalescence and had returned to her home.

The essayist said that Dr. Rufus B. Hall, of Cincinnati, had proposed the method of ligating both ovarian arteries and the uterine artery on the healthy side. The uterus was next amputated on a level with the internal os; the uterine artery on the tumor side was not secured, when he could peel out the cyst from between the layers of the broad ligament with a bloodless result. He said that while he did not wish to detract from the merits of this achievement, yet the method was not to be implicitly relied upon, as it would not control hemorrhage in all cases to a safe degree; in some instances there would be found other vessels requiring ligation before the hemorrhage could be controlled within the bounds of safety. Some tumors of the broad ligament could be peeled out without hemorrhage; others would be attended with considerable loss of blood.

The following officers were elected: *President*—Dr. A. M. Cartledge, Louisville, Ky.; *Vice-Presidents*—Dr. Manning Simons, of Charleston, S. C., and Dr. W. P. Nicholson, of Atlanta, Ga.; *Secretary*—Dr. W. E. B. Davis, of Birmingham, Ala.; *Treasurer*—Dr. W. D. Haggard, Jr., of Nashville, Tenn.

Atlanta, Ga., was selected as the place for holding the next meeting in 1900. Time, the second Tuesday in November.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of December 6, 1899.

The President, MR. ALBAN DORAN, in the Chair.

DR. JOHN PHILLIPS read notes of a case of

TUBAL MOLAR PREGNANCY COMPLICATED BY A SUPPURATING
OVARIAN CYST ON THE OPPOSITE SIDE.

The patient was 40 years of age and had ten children after natural labors. On August 5, 1898, she had pain in left iliac fossa; menstruation had been absent since May. A lump

was found on the left and posterior quarter of the pelvis. On August 26 she had a sudden attack of pain and collapse with vaginal hemorrhage which continued. On September 26 the patient was anemic and had a temperature of 100° and pulse of 108. A fixed bilobed swelling occupied the whole of the lower abdomen. At the operation, on October 17, 1898, the left part of the tumor was found to be an extrauterine sac with putrid contents and with a fetus 3 inches long projecting through the wall; the right part was a suppurating ovarian cyst. After removal of the sac and the cyst, the peritoneum was washed out with three quarts of sterilized water. The patient was quite well a year later. The points of interest were the constant hemorrhage (a sign insisted upon by Dr. Cullingworth), the position of the fetus partly within and partly outside the sac, and the cause of the suppuration.

DR. HERMAN said that Dr. Phillips' specimen was important as throwing light on the possible results of tubal mole and abortion. In many cases tubal mole caused little trouble and seemed a very harmless thing, so that the question arose whether it was good practice to advise operation when this condition was suspected. Dr. Phillips' specimen showed that a tubal mole was not always harmless.

DR. GALABIN said he had met with a considerable number of cases, diagnosed with reasonable certainty as extrauterine fetation, in which a lump of notable size had gradually disappeared without any operation. If the ovum had not reached two months of development, there was a reasonable prospect that the lump would become absorbed; but if there was an embryo as large as that shown, suppuration or septic change would most likely occur.

DR. PETER HORROCKS did not think all cases of tubal moles or hematoceles due to tubal pregnancy should be operated upon, and gave details of cases under his care which were recovering satisfactorily under expectant treatment.

THE PRESIDENT held that bleeding from an unruptured tube bearing a hemorrhagic mole must be considered as a third form of pelvic hemorrhage. Pelvic hematocele, intraperitoneal, was occasionally due to other causes than tubal gestation and was not invariably fatal. Taylor was probably correct in insisting that broad-ligament hematoma was due to tubal gestation only in the minority of cases. The President thought that a large tubal mole was a source of danger and should be removed.

DR. JOHN PHILLIPS read a paper

ON A CASE OF ACUTE (?) IDIOPATHIC PERITONITIS
COMPLICATING PREGNANCY AND LABOR.

The author related the case of a woman, nearly seven months pregnant and in good health, who fell over a chair-back on her left side. Much pain and persistent vomiting followed. She was found in a very serious condition, her abdomen distended, pulse 120, temperature 103° F., and respirations 48. Labor came on, but no true pains could be distinguished, and termi-

nated very quickly. Her condition became rapidly worse, and she was admitted into King's College Hospital. After consultation, Mr. Peyton Beale opened the abdomen and found general peritonitis, but no apparent cause. The patient died in a few hours. Full details of the postmortem examination are given. Short histories of five other cases are related—Matthews Duncan (2), Simpson, Romiti, and Gow.

The author thinks that three important points for discussion arise out of the case, viz., (1) the cause of the infection; (2) the question of operative interference; (3) the share the blow took in producing the illness.

DR. GALABIN had lately met with a case of general peritonitis, not associated with pregnancy, where the causation could not certainly be determined. The patient was 17 years of age, exceedingly ill, the abdomen greatly distended. A large quantity of sero-purulent fluid was evacuated by abdominal section. The intestines were bound down posteriorly, but the effusion extended from the diaphragm to the pouch of Douglas, the uterus and broad ligaments being bathed in it anteriorly and posteriorly. There was no sign of tubercle nor history of gonorrhea. The tubes were not distended, but a few drops of pus could be squeezed from the right tube. He thought it most likely that in this case and Dr. Phillips' the tube was the primary source of inflammation. The patient improved, but died from an anesthetic three weeks later, and no postmortem examination was made.

DR. PETER HORROCKS thought the word "idiopathic" had practically dropped out of medical literature for years. He mentioned a case in a girl of 15 where, every known cause of peritonitis having been eliminated by the physician, idiopathic peritonitis might have been diagnosed: on abdominal section, however, he had found tubercular peritonitis. The fact that no bacteriological examination had been made in Dr. Phillips' case left the real pathology in doubt. Still, in all probability the cause of the disease was some form of microbe.

DR. INGLIS PARSONS did not believe that inflammation ever occurred without a cause. He suggested that the fall might have caused bruising of the intestine, which, thus damaged, allowed bacteria to pass through into the peritoneum. There was also the question of cold and chill; the general physicians allowed that pleurisy might be caused in this way, then why not peritonitis?

DR. AMAND ROUTH referred to Mr. Treves' statements in his Lettsomian lectures, where he had shown that the bacterium coli commune was capable of becoming extremely virulent after the occurrence of inflammation or bruising of the intestine.

DR. ROBERT WISE inquired about the condition of the spleen.

THE PRESIDENT believed that direct infection of the peritoneum through the ostium of the Fallopian tube, without any previous infective phenomena in the vagina, uterus, or tube,

was almost if not entirely unknown. Puerperal infection, it appeared, did not reach the peritoneum through the tube.

The following specimens were shown: THE PRESIDENT: Double hydrosalpinx without salpingitis. DR. WALTER TATE: 1. Sarcoma of ovary, showing necrosis and suppuration in centre; 2. Calcareous fibroid of the cervix. DR. BLACKER: Fibroadenoma of cervix. DR. HERBERT SPENCER: Peculiar mucous polypus of cervix.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Heart Disease from an Obstetrical Point.—A. H. Wright^o believes that a woman having a heart lesion which is compensated should not be prevented from marrying. Abortion should not be induced on a woman with heart disease, unless very serious symptoms are present. Premature labor should be seldom or never induced. Mitral stenosis is the most serious heart lesion during pregnancy and labor; aortic stenosis comes next, then probably aortic incompetency. Mitral insufficiency is the least serious lesion.

Treatment during Pregnancy.—Administer the following according to indications: strychnine, digitalis, or strophanthus, cathartics, nitrite of amyl, nitroglycerin; and regulate the diet.

Treatment during Labor.—Keep up the action of digitalis, especially during first stage. Give strychnine and stimulants, if required, and chloroform. As soon as the first stage is completed deliver with forceps. The patient must be watched very carefully during the third stage, as this is the most serious period.

Uterine Fibroids.—H. C. Coe^r states that the rapidity of growth of a fibroid under the influence of pregnancy is in direct proportion to its more or less intimate relation to the uterus. A pedunculated subperitoneal growth may remain unchanged, while an interstitial tumor undergoes marked enlargement. A subserous fibromyoma situated in the lower uterine segment, or displaced and impacted in the cul-de-sac, may increase in size simply from obstruction to its circulation. Should we advise young women with fibroids of the uterus to marry? In the majority of cases they give rise to no symptoms and are only discovered at the time of pregnancy. It may be said that any fibroid which gives rise to marked symptoms (hemorrhage, pain, and pressure) should be regarded as a positive contraindication to matrimony. As to the treatment, he believes in the conservative trend of modern abdominal surgery, and would not interrupt the pregnancy if it were possible to prolong it until the fetus was viable.

Corpus Luteum.—V. Cornil³⁸ describes the structure of the

corpus luteum and the changes which it undergoes. He states that it is impossible to distinguish corpora lutea of pregnancy from those which have become hypertrophied under the influence of ovarian congestion. He cites a case in which he found two such corpora lutea in one ovary, and two other instances in which three and four were found.

Protracted Gestation.—J. Phillips ²⁷ reports a case of pregnancy occurring in a primipara which lasted 323 days after the cessation of her last period and 310 days after the date of coitus. The child was born alive and of good size, but not unusually large.

Corrosive-sublimate Poisoning in a Pregnant Woman.—M. D. Eder ²⁷ cites the case of a primipara who took by accident two grammes of corrosive sublimate in powder with a draught of water. At the time she was six months pregnant. Under appropriate treatment she finally recovered. At the termination of the pregnancy Eder was called after she had been in labor; he delivered her of a full-term male child. Abdominal palpation showed another child with normal presentation. After waiting one-half hour he delivered her of a dead female child. Some two hours after, a furious hemorrhage took place which was with difficulty stopped. For the last two months of her pregnancy there had been marked edema of the face, arms, legs, and vulva. Recovery was eventually made, but protracted.

Ectopic Pregnancy.—I. B. Perkins ¹⁰ reports a case in which there were dermoid cysts in both ovaries, and pregnancy in the right Fallopian tube, and almost complete obliteration of the left tube. This patient had never menstruated regularly. When most regular she only menstruated three or four times a year, the flow often being absent for six or eight months.

Heinricius ¹⁶ reports a unique case of tubal pregnancy, in which one tube contained two ova of different periods of pregnancy. The patient presented a large abdominal tumor, smooth in outline, which did not resemble an ectopic gestation. Dilatation of cervix with laminaria was followed by general peritonitis and death. Postmortem showed necrosis and perforation of a coil of intestines. The tumor was formed by the enormously enlarged left tube, and contained two full-term children. One fetus was well preserved; the other was entirely disintegrated and must have perished years ago. The patient's history shows that about six years ago she had amenorrhea, nausea, and an abdominal swelling. A year later menses returned and abdomen decreased in size. Amenorrhea and vomiting returned a year ago, with gradual increase of abdomen, and fetal movements. Some time ago fetal movements ceased; decrease of abdomen. Reviewing this history, the author concludes that the patient's right tube became impregnated at six-year intervals.

Schwarz. ¹⁶ Patient felt life, and breasts contained milk. No other symptoms. Supposed period of pregnancy expired without labor taking place; instead of this the abdomen became

smaller and the patient complained of pain and fever. Some months later there appeared an abdominal fistula discharging stinking pus and bone fragments. When first seen by the author the lower abdomen was the seat of a swelling about the size of a fetal head; this was opened and large quantities of pus and full-term macerated fetus were removed. Free drainage. Recovery.

Cackovic.¹⁶ Patient stated that about a year ago she first noted a tumor in the right side, which gradually grew larger and caused much suffering. An ectopic pregnancy was diagnosed, and immediate laparotomy showed a six-months macerated fetus lying free in the abdominal cavity. Placenta and membranes adherent to the intestines, could not be removed. Tamponade after Mikuliez. Gradual recovery.

Ovarian Pregnancy—The occurrence of primary ovarian pregnancy is doubted by most authors. Tussenbroeck,¹⁷ however, has observed a most interesting case. A woman, 31 years old, mother of five children, who had always been well, suddenly became ill and showed pronounced symptoms of internal hemorrhage. Had not menstruated for six weeks, otherwise no symptoms of pregnancy. Diagnosis, ruptured ectopic gestation; immediate laparotomy. Upon opening the abdomen large quantities of fluid and coagulated blood. Patient placed in Trendelenburg position, whereupon the following conditions were noted: uterus soft, somewhat enlarged; left adnexa normal, right tube normal; right ovary capped by a tumor about the size of a walnut, and covered with coagulated blood. The tumor not adherent to the tube or other organs. The right tube and ovary were removed. Good recovery. The specimen was hardened in alcohol; it consists of the right tube and ovary. The tube is normal; although the fimbriæ are slightly adherent, its lumen is open. Pathological adhesions between tube and ovary were not found. As mentioned before, upon the upper surface of the ovary is situated a small tumor, in the centre of which an opening with fringe-like projections. Transverse section of ovary and tumor shows that the tumor represents a cavity containing a small embryo with a relatively thick cord to the wall of the sac. This observation proves conclusively that this case is a primary ovarian pregnancy, the product of pregnancy being situated within a Graafian follicle. The fetal placental structures are identical with the normal intrauterine placenta. The villi have the irregular form of early pregnancy and are covered with two epithelial layers of cells. The fact that the syncytium was typical proves that this structure is of fetal origin and not formed from the tubal or uterine epithelium.

Blood Examinations in Eclampsia.—Levinowitsch¹⁸ examined the blood in 44 cases of eclampsia, and always succeeded in finding the same micro-organism, of which pure cultures could be grown upon bouillon, gelatin, and agar. The micro organism consists of large cocci, round or oval in shape, and of considerable motility, sometimes grouped as diplococci.

It flourishes best at body temperature and upon pieces of placenta; stains well with aniline colors. Although sometimes found prior to the convulsions, they are most numerous during the eclamptic seizures and become less frequent the day following the paroxysms. Subcutaneous injections of pure cultures into guinea-pigs produced hemorrhagic endometritis, and death in about four weeks with symptoms of acute anemia. In a few cases these micro-organisms were also found in the blood of the fetus. In anemia, headache, vomiting—in other words, during the premonitory symptoms of eclampsia—the coccus was sometimes found, but in smaller numbers. The author does not claim to be the discoverer of a specific micro-organism of eclampsia, but believes that this bacterium stands in some relation to the etiology of the disease.

Cesarean Section in Eclampsia.—Biermer¹⁸ reports a case of Cesarean section with transverse incision of the fundus. In the treatment of eclampsia two methods are at our disposal. The expectative method, consisting of hot baths, chloral, morphine, and so forth, is undoubtedly successful in many cases. There are, however, conditions under which this treatment is useless and other more radical means must be resorted to. Dührssen has shown that a rapid emptying of the uterus is of importance. He advocates the accouchement forcé and dilatation of the cervix by means of deep incisions. Of 80 cases thus treated, 75 were cured, convulsions ceasing after delivery. Halbertsma believes that under certain conditions Cesarean section is indicated, and although the prognosis is less favorable, the operation may be necessary to effect a rapid delivery. The case reported by Biermer was a primipara, 24 years old, who was suddenly seized with severe headache and became comatose. Urine contained large quantities of albumin, epithelial casts, and red blood corpuscles. Cervix intact, pains absent. With convulsions about every thirty minutes, the patient's condition was certainly very serious. Immediate delivery being indicated, and the condition of the cervix precluding delivery per vias naturales, Cesarean section was performed in the usual manner. The child was asphyxiated, but revived after a few minutes. Bleeding not excessive. The operation was completed without further complications. The convulsions, however, did not cease, but repeated themselves at short intervals. The patient died thirty-six hours after the operation, having in the meantime had twenty-four more convulsions. A postmortem examination demonstrated general edema of the internal organs, especially the brain, a fatty degeneration of the heart, acute nephritis, and subserous hemorrhages of the liver. The author concludes that, although the termination of the case was unfortunate, no other treatment could have saved the patient's life, and Cesarean section certainly resulted in saving the life of the child.

Cesarean Section.—J. A. Graffs²⁶ reports a case of Cesarean section performed on a woman with a pelvis measuring one

and three-quarter inches antero-posteriorly and three inches transversely. Both mother and child survived.

F. C. Batchelor³ reports the case of a woman who had hysteropexy performed for a retroverted uterus. One year after the operation she was brought into the hospital in labor. She had been in labor some time and all means to deliver had failed. On examination it was found that the fundus was attached to the abdominal wall by a thick, non-stretchable band. Cesarean section was performed and a dead child removed. The patient did well for a few days, then became restless, with a rapid pulse and gastric pain; the symptoms became worse, and she vomited a large amount of black blood and died.

The Physiological Character of the Pain of Parturition.

—S. M. Brickner⁴ states that during the intrauterine life of the fetus the parturient canal remains closed for the protection of the fetus. Its dilatation at the time of labor is painful because sensitive parts are stretched. Pain is, therefore, inseparable from parturition. This pain is common to all animals which give birth to their young from a uterus with a placental attachment. Compared with other important functions, parturition is a great rarity. If the commonly repeated functions were painful, the species could not continue its existence. There would be no gain in having the vegetative functions painful. The one is in the life of the individual, the other in the life of the species. The uterine contractions are chief among the causes of the pain. Their intermittent character, which provides safety for mother and fetus, proves their physiological nature. The pain of parturition in the second stage is a stimulant to renewed effort for the expulsion of the fetus. The lack of revivability of this pain in the memory soon after its occurrence, while pain of another character is easily remembered, proves its biological importance.

Placenta Previa.—At a recent meeting of the Dresden Gynecological Society, Von Holst¹⁷ discussed the treatment of placenta previa, and highly recommended the introduction of Braun's colpeurynter within the uterus. This treatment is termed hystereuryntesis and is said to have many advantages over Braxton Hicks' version. In central implantation the examining index finger or ovum forceps perforates the placenta, avoiding wherever possible large blood vessels, and through this opening the colpeurynter is introduced within the amniotic cavity. The colpeurynter is next distended with sterilized water or any other mild antiseptic fluid, and gentle traction made either with the hand or a pound weight. This distended balloon arrests effectually the hemorrhage and also causes uterine contraction and the rapid termination of labor. In marginal implantation, rupture of the membranes suffices to arrest the bleeding, and after this the case should be permitted to terminate normally.

Umbilical Hemorrhage.—Heymann¹⁸ reports a case of umbilical hemorrhage in a new-born child with a syphilitic

history. The bleeding began on the fifth day post partum, immediately after the umbilical stump had become separated, and continued in spite of compression, liquor ferri, and the Paquelin cautery. Deep ligation and suturing of the umbilicus with aluminum wire arrested the bleeding.

Puerperal Infection.—H. W. Longyear⁶ states that the early diagnosis and treatment of pseudo-membrane by topical applications is of great importance. The intrauterine douche frequently applied is of most value in the forms of infection unattended by the formation of a pseudo-membrane. The vaginal use of peroxide of hydrogen is helpful in all forms of infection. Frequent packing of the vagina, previously dried, with iodoform gauze is especially useful in cases with pseudo-membrane. In the general treatment he gives quinine twice daily, whiskey and strychnine to support the heart, nuclein and protonuclein in all cases; mercurial and saline cathartics at first in all cases, then as indicated; serum therapy to be applied where the Klebs-Löffler bacillus or the streptococcus can be demonstrated by bacteriologic examination. Streptococcus antitoxin serum is to be used persistently to prevent pus formation and symptoms of systemic infection.

Induction of Labor for Nephritis.—J. M. Lwoff³¹ writes that cases of so-called "kidney of pregnancy" may sometimes be carried to term by milk diet, baths, and pilocarpine, but when the albumin increases and urine diminishes induction of premature labor is indicated. These accidents usually begin about the sixth month, and pregnancy may be carried to the second half of the eighth month before inducing labor. In cases of acute nephritis, gestation should be interrupted at once, whatever its duration may have been. In chronic nephritis interference with pregnancy is demanded whenever the general condition becomes worse.

Laceration of Vagina during Labor.—S. N. Merkoulloff³¹ describes a case in which a woman of 35 was found in her second labor at term. A hand had prolapsed and been replaced. Abdominal pain and vomiting were present. The anterior vaginal wall was torn, the fetus in the peritoneal cavity, the membranes in the uterus, placenta in the vagina. After laparotomy and vaginal drainage, metritis and perimetritis subsided and recovery followed in a month.

Expression of the Fetus.—G. Keim⁴¹ founds his conclusions as to the value and innocuity of this procedure upon the observation of 35 cases of various presentations. He believes that expression of the fetus by the hand upon the abdominal wall causes neither asphyxia nor severe compression, though he acknowledges the possibility of producing meningeal or medullary hemorrhage in some cases. Keim favors this adjuvant of labor, because it is without danger to the mother, and easy of application when asepsis is difficult to secure, and when it may replace the use of forceps and other obstetrical operations.

Pregnancy and Labor following Amputation of Cervix.—Chaleix-Vivie³⁴ submits personal statistics tending to show

that amputation of the cervix has no influence upon the duration of pregnancy, the progress of dilatation, rupture of the membranes, and the nature of the presentation. Seventeen women operated upon by him had 23 subsequent pregnancies, 4 of which terminated prematurely. Of the remaining 19, 17 were vertex presentations. In all but 1 the membranes ruptured at an advanced stage. Dilatation was rapid in all cases.

Glycosuria during the Puerperium.—Queirel and Domergue¹⁴ conclude from their investigations that glycosuria is exceptional during pregnancy; that when it is transitory it can have no pathological significance.

Relaxation of Pelvic Articulations.—L. Cantin¹⁶ calls attention to the frequent occurrence of relaxation of the pelvic articulations during pregnancy, and to the attacks of pain which often follow and are sometimes mistaken for neuralgia or hysteria.

Varicose Veins of the Vulva.—W. E. Darnell²² reports the case of a woman, 42 years old, who had had eleven children in nine confinements. She usually remained in bed only three or four days after labor. Upon examination the labia were greatly enlarged by varicose veins; there were also knotted veins in each groin, and both legs were full of varicosities. While in this condition she was delivered of a child without any accidents occurring at the time of labor.

GYNECOLOGY AND ABDOMINAL SURGERY.

Technique of Inversion of the Appendix.—Baldwin¹⁴ describes the technique of inversion of the uncut appendix as follows: The appendix is freed from adhesions, if present, and brought up into view in the usual way. The tip of the appendix is held by an assistant with one hand, while with the thumb and forefinger of the other the colon is supported just below the origin of the appendix. With a ligature-carrier a catgut ligature is then introduced at the base of the appendix, so as to include the meso-appendix, care being taken to embrace the small artery that runs along close to the appendix. The meso-appendix is then ligated, the ends of the ligature being left long. With scissors the meso-appendix is severed just beyond the ligature, and the tissues constituting it are then seized either with fingers or forceps and stripped off from the appendix from the base to the tip. This is usually accomplished with a single effort, but occasionally they will have to be removed in pieces. Not infrequently, and quite usually when operating on an acutely inflamed appendix, great thickening of the peritoneal and muscular coats will be found present. These coats will be so infiltrated that inversion is impossible. In such a case a longitudinal incision can be easily made with either knife or scissors, cutting through these two coats down to the mucous membrane. This having been done, the thickened coats are very easily peeled off, leaving merely the mucous membrane intact, which is so thin and soft as to

offer slight obstacle to inversion. Not infrequently, however, the distal extremity of this mucous-membrane tube is obliterated as a result of previous inflammatory attacks. In such an event the obliterated end must be snipped off with scissors before proceeding to the next step. Care should be taken, however, not to open into the lumen of the tube. The appendix having thus been prepared for inversion, the tip is seized between the thumb and forefinger of one hand and inverted by pressing upon it with the blunt end of a patent-eyed needle. The manœuvre is accomplished by a manipulation somewhat similar to that employed in putting a fish-worm on a hook. The tip having been inverted for about the length of the needle, an inch or more, the needle is removed and an ordinary long probe substituted. With this the inversion is completed in an instant. If, as the probe is being introduced into the colon, carrying with it the appendix, it meets with a fold offering obstruction, it should be withdrawn and the rest of the inversion completed with the fingers. This is accomplished without any trouble whatever. Inversion now being complete, one end of the ligature which had been previously used is threaded into the needle and a single stitch taken across the opening in the bowel which marks the point of disappearance of the inverted appendix. If it seems desirable two stitches can be taken. The catgut is drawn through until the stump of the meso-appendix is brought up against the opening, and then by tying the two ends the operation is completed. The operation can usually be made in very much less time than it takes to describe it. The vascular supply is so completely cut off by the ligation of the meso-appendix that I have no doubt the inverted organ promptly sloughs off or possibly undergoes a species of digestion. I have had but one opportunity of investigating the post-operative appearance of the appendix. In that case death resulted at the end of about a week after the operation—the operation for the removal of the appendix being only incidental, and death occurring not as the result of the operation. The autopsy showed the appendix very much softened and evidently rapidly breaking down. Healing seemed to be complete at the seat of the operation. In a very few cases in which operation is made for appendicitis, conditions will be found which will render inversion impossible or so difficult as to be unwise. These will be cases usually of gangrene of the tissues, or in which there is a tight constriction near the base of the appendix. Fecal concretions, if present, can usually be readily forced into the colon and open the way for more easy inversion. The only possible objection to the operation is that no specimen is secured to display to the patient and his friends. This objection, however, is of no importance, of course, when considered in connection with the manifest advantages of inversion over opening the bowel. The operation of inversion is made in a very few moments. There is no hemorrhage connected with it and there is no danger of infection. When made in connection with other

operations requiring opening of the abdomen, it can hardly be said to have any mortality whatever. Considering the fact that it removes once for all every possibility of appendicitis in the subject of the operation, and considering the great mortality of the disease which is thus obviated and its enormous morbidity, it seems to me that it would be wise for operators in general to adopt some form of this manœuvre as a routine procedure in connection with their laparatomies.

Mensuration and Capacity of the Female Bladder.—Guy L. Hunner and I. P. Lyon¹ state that in 25 women examined, the average bladder capacity by atmospheric distension was found to be 303 cubic centimetres, individual cases ranging from a minimum of 160 to a maximum of 545 cubic centimetres. The average fluid capacity was found to be 429.7 cubic centimetres, varying in individual cases from 210 to 840 cubic centimetres. The fluid capacity was thus found to be one-third greater than the air capacity.

The influence of child-bearing on the capacity of the bladder is shown in the following table:

	Atmospheric capacity.	Fluid capacity.
Nulliparous	313.8 c.c. (av. 13 cases)	464.5 c.c. (av. 11 cases)
Parous.....	291.2 c.c. (av. 12 cases)	395.0 c.c. (av. 11 cases)
	303.0 c.c. (av. 25 cases)	429.7 c.c. (av. 22 cases)

The average measurements obtained under atmospheric dilatation in the knee-chest posture were: to summit, 7.14 centimetres; to posterior wall, 5.77 centimetres; to left lateral wall, 6.70 centimetres; to right lateral wall, 6.92 centimetres. Taking the measurements separately for nulliparous and for parous women, the averages were found to be:

	Summit.	Posterior wall.	Left lateral wall.	Right lateral wall.
Nulliparous (av. 13 cases)...	7.43 cm.	5.75 cm.	7.03 cm.	6.12 cm.
Parous (av. 12 cases).....	6.83 cm.	5.79 cm.	6.35 cm.	5.72 cm.

The explanation of these figures, showing the greater capacity of the bladder of nulliparæ, is doubtful; it may be that it is purely accidental, due to the limited number of cases. They suggest, however, that it may be due to the greater elasticity of the bladder in the nullipara, influenced both by her average younger age and the fact that her surrounding tissues have not been injured. In the above table of measurements it will be seen that the dilated bladder is asymmetrical. In 16 cases the left lateral measurement is greater than the right. This fact

may be explained by the fact that the rectum in women is found much more commonly on the right side than on the left within the pelvis. The uterus is usually displaced somewhat to the left of the median line, thus lowering the point of greatest outward bulging on the left side. The bladder, when dilated with air and observed during operations within the pelvic cavity, was found to be ellipsoidal in form, flattened somewhat in the antero-posterior diameter. The average length of the urethra in 17 cases was 3.3 centimetres.

Hernia following Abdominal Operations.—According to A. T. Smith,² hernia following abdominal operations is quite preventable—by leaving in the stitches for one month, if the woman is thin enough to allow us to use through-and-through sutures, or by using non-absorbable buried ligatures when the woman is fat enough to require two layers of sutures; by discarding the abdominal drainage tube, and, when drainage is necessary, draining through the vagina. It is necessary to secure accurate coaptation of the cut edges by marking the places where the stitches are to go, before the incision is made. Care should be taken that no peritoneum is curved up so as to come between the muscle and fascia of the opposite sides. Hernia, when it does occur, is easily cured, in small cases, with a single buried silkworm-gut purse-string suture; and in larger cases by splitting the edges of the ring until the recti muscles are exposed from top to bottom, and suturing them with buried silkworm gut. Patients with buried silkworm-gut stitches do not need to stay in bed more than two weeks, and in some cases less; and they do not need to wear an abdominal belt. Patients with through-and-through silkworm-gut stitches left in for a month can, in case of necessity, go home in twelve or fifteen days, and return at the end of four weeks to have their stitches removed. They do not need to wear a support until the stitches are removed, and even then it is much less necessary than in patients whose stitches have been removed early.

Backward Displacement of the Uterus.—A. E. Giles² sums up this subject in the following manner: Retroversion of the uterus requires no treatment when it causes no symptoms. A simple retroversion may cause symptoms by disturbance of circulation, by pressure, or reflexly. Pressure symptoms are uncommon in the absence of enlargement of the uterus. Reflex disturbances are most frequently gastric, vesical, or nervous. A simple retroversion can usually be cured by the temporary use of a pessary. Retroversion with endometritis is frequently complicated with prolapsed ovaries. In the treatment of this condition the inflammatory condition must be cured before the introduction of a pessary. Prolapsed endometritis requires curetting, with trachelorrhaphy or perineorrhaphy in some cases, before the displacement can be dealt with. When retroversion is associated with fixation by adhesions, the first step must be to restore the mobility of the uterus. To introduce a pessary in a case of retroversion with fixation is to add risk to inefficiency. When milder

measures fail, the abdomen should be opened, the adhesions separated, and the uterus fixed in the proper place. In the absence of adhesions, hysteropexy is sometimes required to cure an intractable retroversion. Retroversion of the gravid uterus is usually reducible, with the help, in some cases, of an anesthetic. In cases of irreducible retroversions it is usually better to free the uterus by abdominal section than to terminate the pregnancy; but in some cases the induction of abortion will be necessary.

Stypticin in Uterine Hemorrhage.—Abegg¹⁰ finds the administration of stypticin, in one-grain doses two to five times a day, of considerable value in profuse or irregular menstruation and flooding during the puerperium and climacterium. As might be supposed, the drug is useless in beginning abortion and large myomata and polypi.

A New Treatment for Coccygodynia.—Rose¹⁶ reports three cases of coccygodynia. *Case I.*—Woman 37 years old. About fifteen years ago difficult labor. Patient suffers severe pain when sitting down—at first only during menstruation; later became continuous and increased in severity. Examination demonstrated the coccyx and its articulation not sensitive to pressure, but higher up in the rectum a sensitive spot could be localized. This spot appeared to be swollen, and pressure elicited the pain complained of. Massage of this spot greatly improved patient's condition, and within about two months the pain disappeared entirely.

Case II.—Woman 35 years old, two normal confinements. Pain has existed for about four years, both when sitting down and during defecation. Long walks are entirely impossible, and patient states that she is unable to sit down at all. In this patient also the coccyx was not sensitive, but the pain could be again localized in the rectum, where a corresponding swelling was felt. After one massage treatment the patient could bend down without pain and for the first time in years took a short walk. About five months' massage treatment effected a complete cure. At first the pains appeared at long intervals, and appeared only during menstruation, but after the expiration of five months the patient considered herself cured.

The third patient suffered from coccygodynia for about three years. An existing retroflexion was thought to be its cause, but a correcting operation failed to effect a cure. Patient complains of pains, increasing in severity, and states she is unable either to sit or to walk. An examination shows uterus in normal position, chronic endometritis, coccyx apparently normal. In the left wall of the rectum a sensitive and swollen spot appeared to be the source of pain, and in this case also a few months of massage relieved the patient of her suffering and restored her normal health.

The author states that he administered the massage at first daily, but as the condition improves the intervals may be increased. A previous emptying of the rectum and thorough irrigation of the organ is advised.

Vesico-urethro-vaginal Fistula.—J. S. Horsley²² reports a case of this variety on which he performed the following operation: The patient was placed in the Sims position. The tissue around the opening in the bladder was denuded down to the vesical mucous membrane; then the urethra was cut obliquely so that the opening in the urethra would equal that in the bladder. Two silk sutures were inserted, going through the mucous membrane and muscular coat of the bladder and upper part of the urethra. These approximated the upper part of the vesical opening and the corresponding portion of the urethra. Then four sutures of fine silkworm gut coaptated the lower portion of the vesical and urethral opening. A catheter was inserted through the urethra and one through the base of the bladder. The one in the base of the bladder came out in four days, the other was removed in a week. Two small fistulæ remained at either end of the wound; these were closed at subsequent operations.

The Undulatory Current in Gynecology.—G. Apostoli³² advocates the undulatory current in gynecology for relieving pain and congestion. It is powerful in its action upon intermenstrual pain or dysmenorrhea. Though of no value in infectious cases, it checks leucorrhea due to congestion in the puerperal state. It is likewise useful in treating hemorrhages connected with a congestive metritis or subinvolution. Acting like abdominal massage, it may be employed in cases of obstinate constipation and some cases of amenorrhea. It is inferior to galvano-cautery for the cure of neoplasms, but may be used to diminish the pain and congestion which they cause. By relieving congestion and stimulating muscular contractility it may give symptomatic relief in cases of uterine displacement. It is especially valuable, in view of its analgesic and stimulating effects, in congestive and exudative periuterine lesions.

Operative Treatment of Inflammation of Appendages.—Jonnesco³³ holds that in bilateral disease of the appendages, whether suppurative or not, the abdominal route alone should be employed, and complete removal of uterus and appendages is advisable.

La Torre³³ considers that either uterus or appendages should be saved if healthy.

J. L. Faure³³ favors abdominal hysterectomy for chronic bilateral lesions of the appendages, and vaginal hysterectomy in acute cases demanding immediate operation and subjecting the peritoneum to the dangers of infection.

Retrouterine Hematocele.—Delangre⁴⁰ favors colpotomy for retrouterine hematocele, because it permits of drainage through the vagina and offers no chance of weakness of the abdominal wall and no opportunity for peritoneal infection.

Gall Stones in the Common Duct.—F. W. Samuel,²³ in operating for impacted stones in the common duct, prefers an incision beginning opposite the eighth or ninth costal cartilage and extending to two and a half inches above the umbilicus; making an angle, it is extended along a line parallel to the free

border of the costal cartilages. When the abdomen is opened the gall bladder should be at once located and adhesions freed. The liver is next lifted up and held, while the finger is pushed through the foramen of Winslow and the common duct and its vessels hooked up and examined. When the stone is felt with the finger, do not waste time by trying to push it out of the duct, but bring it to an incision in the duct with the fingers. After the stone has been removed you can either suture the incision or leave it open and drain. Samuel, from his experience in this condition, has come to the conclusion that when a choledochotomy is necessary a cholecystotomy is called for to drain a gall bladder that is diseased. The only exception is absence of the gall bladder or where adhesions make it impossible. Drainage should be continued for from four to eight weeks. Where suturing is done it is better to drain for a short time.

The Detection of Calculi in the Liver and Gall Bladder.

—Carl Beck²⁴ classifies calculi as follows: biliary, pure cholesterolin, stratified cholesterolin, pure bilirubin-calcium, and mixed bilirubin-calcium calculi. These calculi show marked differences in their permeability to the Röntgen rays. The common biliary calculi are permeable to the rays and therefore produce a slight shade only. The pure cholesterolin show a slightly more distinct shade. The stratified cholesterolin calculi give a distinct skiagraph. The mixed bilirubin-calcium calculi give even a more distinct shade than the previous one. The pure bilirubin-calcium calculi are of two varieties, one hard and the other soft like wax—both forms show a shade, but the harder one the more distinct. The amorphous or imperfectly crystallized cholesterolin calculi give a very faint shade. The compound of calcium and bilirubin or carbonic acid gives distinct shades. The combined calculi give skiagraphs which depend upon the amounts of the different ingredients.

Intestinal Obstruction.—T. J. Watkins²⁶ reports a case of intestinal obstruction which occurred eight days after a vaginal hysterectomy. An operation was performed three days after the symptoms of obstruction commenced. The intestines were found bound down by old and new adhesions; areas of the gut were completely denuded of peritoneum and of a dark color. The intestine was tapped by a large needle and much gas and about one pint of fluid drawn off. The needle wounds were closed by Lembert sutures. One quart of normal saline solution was poured into the abdominal cavity and left there. The patient made a good recovery.

Werth¹² reports 1,000 cases of abdominal section with 11 cases of ileus; of these 5 recovered. Acute intestinal obstruction may occur in spite of scrupulous asepsis. The best prophylaxis is to operate in the Trendelenburg position; small incision, if possible immediately above the symphysis pubis, and extra-abdominal treatment of stump. Intestinal adhesions form with the abdominal scar, pedicles, and raw surfaces in general, especially in Douglas' cul-de-sac. Great care should

be taken in suturing the peritoneum and covering of the pedicles. Intestinal peristalsis is objectionable and the early administration of purgatives is considered inadvisable. Codeine is recommended for relief of pain, because less constipating than morphine.

The After-treatment in Difficult Laparatomy.—According to Fritsch¹² death is usually the result of general asthenia, therefore complete rest should precede the operation. Strong purgatives, because depressing, are contraindicated. Toward the end of the operation copious infusions of saline solutions and preservation of the body heat through hot bottles and well-warmed bed are important. Sprinkling of the body with hot water during the operation is sometimes of benefit, but the best remedy is hot-water injections, repeated every two hours. No nourishment during the first forty-eight hours. If the patient has fever, Fritsch administers quinine. Whether the bowels move or not is immaterial. Purgatives do not prevent the formation of adhesions.

Etiology of Uterine Fibroids.—G. P. Murray believes that the predisposing causes of race, age, or condition count for little. That chronic inflammations of the endometrium, uterine parenchyma, and of the ovaries and tubes are most powerful predisposing causes, and that there is a direct relation between the hyperplasia of the uterus and the formation of fibromyomata. That extreme disturbances of the nervous system precede and accompany the formation of uterine fibroids. Insomnia, headaches, and hyperesthesia of the sensory organs are present to a greater degree than is usually found when the concomitant symptoms of the inflammatory condition of the uterus are present. That the evolution of the fibroid from the fibromatous centres when it begins to take on growth is exceedingly rapid, and that it is impossible to tell the age of the growth by its size. The rapid appearance and development are the reasons why so few fibroids are seen and examined in their incipency. That the size and rapidity of growth of a fibroid depend upon its blood supply, which is determined from the beginning by the location of the nidus, and therefore such conditions as pregnancy or the menopause could have little influence. The possibility of the action of curettage as a predisposing cause for these tumors, on account of the violence done to the blood vessels, and of hastening their growth, because of concentrating the blood supply. Keiffer has demonstrated that the blood supply is cut off from the uterine tissue, which then becomes condensed into whorls of fibrillæ which afterward develop into fibroids, obtaining their blood supply from the surrounding uterine tissue. He has shown that the tumors were composed of a histological structure in no way differing from the normal uterine tissue, save that which related to the concentric arrangement of fibrillæ. There was no evidence of embryonic tissue or new formation.

Operative Treatment of Uterine Fibroids.—F. A. Lockhart²⁰ concludes a paper on this subject as follows: 1. A

uterine fibroid should not be interfered with unless it is giving rise to serious symptoms, be they mental or physical. 2. Cu-
retting is merely a palliative measure, as is also, in many
cases, ligature of the uterine arteries. 3. Removal of the
appendages ought to be merely a *dernier ressort*, as it prac-
tically never cures and does not always even relieve. 4. The
operation of selection should be either total hysterectomy or
else myomectomy. 5. Myomectomy is to be chosen (a) where
the tumor is submucous and pedunculated; (b) where it is
subserous and either has a pedicle or a well-defined border;
(c) where several small nodules lie immediately beneath the
peritoneum. 6. Total hysterectomy is indicated (a) where
the tumor is submucous and non-pedunculated, and the cer-
vix cannot be dilated sufficiently to allow of morcellement;
(b) where the tumor is either interstitial, large and subserous
without a pedicle, soft, fibrocystic, or undergoing degeneration;
(c) where the tumor is complicated by diseased adnexa.

Mammoth Ovarian Tumors.—J. B. Bullitt,²² after a study
of twenty-four cases of large ovarian tumors, comes to the
following conclusions: 1. That the fatality is in direct propor-
tion to the size of the tumor. 2. Extensive adhesions to the
parietes and viscera militate against successful operations, but
are second in importance to the size of the tumor. 3. Prelim-
inary aspiration, followed by extirpation in a few days, is
apparently no safer than immediate operation. 4. Marsupial-
ization is contraindicated in tumors of large size. 5. Suc-
cessive tappings are sometimes tolerated for a long period.
6. When death occurs after operation it is most apt to be im-
mediate, within a few hours, as the result of shock. If the
shock is survived, the fatal issue is apt to be due to intestinal
obstruction. In one case, that of Ap. M. Vance, the patient
was tapped 179 times in 46 years; at each tapping about 120
pounds were withdrawn, making a total of 21,480 pounds in
the forty-six years.

Dermoid Cyst in Pelvic Cellular Tissue.—Ali Krogius³⁰
reports the following case: From childhood the patient had
suffered from pain in the lower part of the abdomen. At 16
years of age she began to have severe and increasing constipa-
tion, abdominal enlargement, and intense pain. She is said to
have had no evacuation of the bowels for nine weeks at one
time. After this was relieved pain was absent until about a
year before the operation by Krogius. At this time constipa-
tion became marked and the patient could not bend forward;
no vomiting, urinary symptoms, or menstrual irregularity.
At the age of 26 a cyst occupying the entire pelvis and at-
tached to its posterior wall was removed by the sacral route.
The cyst wall was generally thin and smooth, in places thick
and calcified. Its structure resembled microscopically that of
the skin, but no glands or hairs were present.

Malignant Degeneration of Ovarian Dermoid Cyst.—
M. A. Eberline⁴² reports the thirteenth published case of car-
cinomatous degeneration of dermoid cyst of the ovary. The

patient was 50 years of age and had noticed the existence of an abdominal tumor for twenty years. Metastatic deposits were found in the omentum and mesentery.

Classification of Cystitis.—Senn,³⁹ in an able article on this subject, divides his subject as follows:

1. ANATOMICAL CLASSIFICATION.—(a) Pericystitis; (b) paracystitis; (c) interstitial cystitis; (d) endocystitis.

(a) *Pericystitis*.—Cystitis is the term usually employed in designating an inflammation of the bladder, without any special reference to what tissues are the seat of the inflammatory process. In the diagnosis of all diseases it is of the greatest importance to determine, if possible, the organ or tissues in which the disease had its starting point; in other words, to make first an anatomical diagnosis. Although the mucous membrane of the bladder is most frequently primarily affected in cystitis, either of the remaining two tunics may be the primary starting point of the inflammatory process, from which the infection may or may not extend to the mucous membrane, but the symptoms usually point in that direction.

Guyon calls attention to the great difficulties which the surgeon frequently encounters in the differential diagnosis between cystitis and neoplasms of the bladder. He demonstrated in his clinic two patients in which, besides the usual symptoms of cystitis, an infiltration of the bladder wall simulated tumor. Suprapubic incision of the bladder cleared up the diagnosis, as it revealed a well-marked pericystitic infiltration. In a third case the symptoms, which had existed for eight months, appeared to point directly to cystitis, when a perineal section made it clear that it was a case of carcinoma.

In pericystitis the peritoneal coat of the bladder is the seat of inflammation; it is in reality a vesical peritonitis. This anatomical form of cystitis follows usually in consequence of the extension of an inflammation from one of the adjacent organs—the appendix, uterus, tubes, or ovaries; in rare instances it is caused by intestinal perforation. The inflammatory product is most abundant around the base and at the sides of the bladder. At the sides of the bladder, at a point corresponding with the vesical end of the ureter, the inflammatory masses often reach considerable size, and by cicatricial contraction may eventually cause ureteral obstruction. In the female, vesical peritonitis is usually secondary to pelvic peritonitis. The immobilization of the bladder by adhesions and the vascular disturbances caused by the pericystitis are often productive of great vesical distress, and secondary pathological changes often reach the mucous membrane of the bladder.

Dacheux believes that the condition of irritable bladder in women, which has previously been regarded as a purely functional disorder, is really, as Zuckerkandl states, due to localized hyperemia of the mucous membrane, which can be demonstrated by cystoscopic examination. Hyperemic patches are seen at the base of the bladder, and less often at the neck, which bear a close etiological relation to concomitant conges-

tion of the uterus and adnexa, and often disappear when the latter is relieved.

Kolischer describes, in connection with such cases, a peculiar form of edema of the mucous membrane of the bladder observed through the cystoscope. It appears in the form of circumscribed blisters the size of a pea, the rest of the membrane being normal. In some cases the blebs are so large as to resemble vesicular moles. This pathological condition is always associated with pelvic exudates near the bladder, and is seen most frequently in women the subjects of salpingitis. The symptoms attending this form of vesical irritation are painful urination, tenesmus, and a feeling of weight and pressure over the bladder. While the clinical symptoms indicate the presence of cystitis, examination of the urine yields negative results, unless the infection has extended to the mucous membrane of the bladder.

(b) *Paracystitis*.—Paracystitis is an inflammation of the subperitoneal connective tissue of the bladder or of the surrounding connective tissue where the bladder is extraperitoneal in the cavum Retzii and prostatic portion of the organ. At the base of the bladder a paracystitis not infrequently develops in the course of a suppurative prostatitis, and in front of the bladder the disease usually appears in the form of a phlegmonous inflammation of the loose connective tissue in the cavity of Retzius. In both of these locations abscess formation is the usual termination of the inflammatory process, an occurrence always attended by distressing bladder symptoms. Abscesses in both of these places, unless incised early, are very prone to rupture into the bladder, an accident which is often followed by an obstinate cystitis. Inflammation of the subserous connective tissue, following infection through the lymphatic channels, is a very obscure affection, and a positive diagnosis is more frequently made in the postmortem room than at the bedside. The formation of multiple abscesses in such cases is not an unusual occurrence. More or less paracystitis is almost always associated with pericystitis involving the intraperitoneal portion of the bladder.

(c) *Interstitial Cystitis*.—Interstitial cystitis implicates the middle tunic or muscular coat of the bladder. It is in this coat that we find the lymph channels most numerous and consequently the most common pathways of infection. Invasion of the middle coat may take place from either direction, either by extension of infection from the mucous lining, or the microbes may reach the muscular coat through the lymph channels from some adjacent inflammatory focus. Another, but perhaps the rarest, route of infection is through the circulation, when the interstitial cystitis is initiated by an endo- or perivascular inflammation. Direct extension of inflammation of the mucous membrane to the muscular coat, or invasion by way of the lymphatic channels, usually leads to a diffuse inflammation in which the whole middle coat may participate, in which case it becomes greatly thickened and the mucous membrane is changed into

folds. Ridges can be felt with the sound. Interstitial cystitis usually leads to abscess formation. Small abscesses develop in the submucous connective tissue or in the muscular coat, which, when they open into the bladder, leave diverticula which heal slowly and in which calculi are often found concealed. Recovery from this form of cystitis often results in a great diminution in the size of the bladder, caused by cicatricial contraction. In the embolic form of interstitial cystitis circumscribed inflammation and abscess formation are the usual results of the infection.

(d) *Endocystitis*.—What is ordinarily understood by a cystitis is an inflammation of the lining membrane of the bladder. The inflammation may almost from the beginning, or at any rate in a few days, involve the entire surface of the mucous membrane, or it may remain limited to certain localities which are most exposed to infection. Localized cystitis is found most frequently in the trigonum and about the urethral and ureteral orifices; it is also from these points that diffuse cystitis has its starting point. The neck of the bladder is the most sensitive part of the organ, and it is here that inflammation gives rise to the most distressing symptoms. In cystitis proper the urine contains, almost from the very beginning, the morphological elements of the inflammatory product—blood, epithelial cells, and pus corpuscles—the presence of which always constitutes an important distinguishing feature between endocystitis and the other anatomical varieties of inflammation of the bladder. In the further discussion of the classification of cystitis, endocystitis, or cystitis proper, will be taken as a type of the disease.

2. PATHOLOGICAL CLASSIFICATION.—(a) Catarrhal cystitis; (b) suppurative cystitis; (c) ulcerative cystitis; (d) exudative cystitis; (e) exfoliative cystitis.

The effects of microbes and their toxins on the tissues of the bladder vary according to the specific pathogenic effect of the original bacterial cause and the number of microbes and their degree of virulence. The inflammatory product is also greatly influenced by the condition of the urine and the nature and extent of the predisposing causes. The successful treatment of cystitis is often materially influenced by the character of the inflammation and the nature of complications which may precede, attend, or follow cystitis. The pathological classification must be based entirely on the character of the inflammatory product.

(a) *Catarrhal Cystitis*.—For a long time catarrh of the bladder has been regarded as synonymous with chronic inflammation. German writers have been particularly partial to this term, which has made so much confusion in the literature on inflammatory affections of the bladder. From a modern pathological standpoint, catarrhal cystitis is a term used to indicate the existence of a superficial inflammation of the interior of the bladder, in which the epithelial cells furnish the principal part of the morphological elements of the inflamma-

tory product. It is, like all catarrhal inflammations in other localities, a surface affection. The mucous membrane is swollen, red, and the inflammatory process consists in increased exfoliation of epithelial cells and an abundance of mucous formation. If the disease becomes chronic, thickening of the mucous membrane and secondary infiltration of the muscular coat lead to hypertrophy of the bladder wall. Retention of urine aggravates the inflammation and increases the vesical distress. Erosions and superficial ulcerations may develop during the course of the disease. The urine is usually acid and contains pus and an abundance of bladder epithelium. In cases in which the urine has undergone alkaline decomposition the inflamed surface presents a dirty-whitish deposit of muco-pus.

(b) *Suppurative Cystitis*.—Suppurative cystitis appears clinically usually as a diffuse affection, in which not only the epithelial lining but also the deeper structures are generally involved. The microbic infection is of sufficient intensity to destroy the protoplasm of the morphological products of the inflammation, white corpuscles purely epithelial, and connective-tissue cells, and transform them into pus corpuscles. The urine contains large quantities of pus and bladder epithelium. During the acute stage small fibrinous patches appear upon the inflamed surface. Ulceration differing in extent and depth is of common occurrence. Deep necrosis may lead to perforation. If the urine is ammoniacal, the necrosed patches present a grayish-white color and are encrusted with sand-like deposits. The decomposition of the urine is generally due to other microbes than those which have caused the suppurative inflammation—that is, it is generally the result of a mixed infection. Besides the usual pyogenic microbes, the ammoniacal urine contains some species of saprophytic bacteria or the diplococcus ureæ. Suppurative cystitis generally begins as an acute inflammation, but is very liable to pass into the chronic form, and direct extension of the infective process is liable, sooner or later, to implicate the kidneys.

(c) *Ulcerative Cystitis*.—This is a form of cystitis in which ulceration takes place almost from the beginning of the inflammation. In cases of this kind the infection appears to be of a peculiar kind, limited in extent, and the resulting inflammation leads quickly to a circumscribed destruction of tissue, the formation usually of a single circumscribed ulcer, the so-called “simple” ulcer of the bladder. This form of cystitis is quite rare, and resembles in many respects gastric ulcer and the round duodenal ulcer. It is undoubtedly the result of an infection from the blood, the inflammation attacking the tissues around an infected embolic infarct, reaching the surface of the bladder by a process of ulceration. Like gastric and duodenal ulcer, ulcerative cystitis is found, as a rule, in young adults, and usually without any antecedent or attending predisposing local causes.

(d) *Exudative Cystitis*.—Inflammation of the mucous

membrane of the bladder accompanied by the deposition upon the inflamed surface of the products of coagulation necrosis should be called exudative cystitis. The exudate consists largely of fibrin, and is variously modified in quantity and appearance by the character of the infection and the condition of the urine. The exudate is the best possible proof of the severity of the infection and intensity of the inflammation. It proves the existence of a deep-seated lesion and great damage to the blood vessels in the inflamed tissues. This form of cystitis is most frequently observed in puerperal women and women suffering from pelvic tumors large enough to subject the bladder to harmful pressure. The urine in exudative cystitis is usually alkaline, and Savor believed that in his case it remained acid after the first days owing to the absence of a mixed infection. In the majority of cases exudative cystitis occurs in women during the child-bearing period, and positive proof of the pathological nature of the cystitis is always furnished by the expulsion of membranes or shreds of fibrin with the urine.

(e) *Exfoliative Cystitis*.—Exfoliative cystitis is an inflammation of the bladder in which, almost from the very beginning, the toxins of the microbes which produced the disease destroy the mucous membrane and sometimes even the muscular coat, which, if the patient survive, become detached with the inflammatory product and are expelled with the urine, or in some instances have to be extracted from the bladder by the surgeon. This is the most dangerous form of cystitis, and can only occur as the result of a most virulent infection, aided in most cases by local predisposing causes. In exudative cystitis the toxins precipitate the inflammatory product by causing coagulation necrosis; in exfoliative cystitis they cause necrosis of the mucous lining of the bladder and occasionally also of the muscular coat. The same mechanical causes which are so influential in causing exudative cystitis are usually present and active in the production of exfoliative cystitis. In a few cases carcinoma of the bladder appears to have been the predisposing cause of this form of cystitis, with the result that the disease was completely removed by the extensive sloughing, and in a few instances the patients not only recovered from the cystitis, but were permanently cured of the carcinoma by the complete elimination of the malignant tissues with the product of the exfoliative process. The degree and extent of the exfoliation vary with the intensity of the mechanical cause and the virulence of the infection. The differentiation between exudative and exfoliative cystitis can only be made by a careful study of the membranes, shreds, or masses expelled or removed from the bladder, which often must necessarily include the use of the microscope as a diagnostic aid.

3. CLINICAL CLASSIFICATION.—(a) Acute cystitis; (b) chronic cystitis.

(a) *Acute Cystitis*.—The old and usual clinical diagnosis is

based on the intensity of symptoms and duration of the disease. That form of inflammation of the bladder in which the symptoms appear suddenly and reach their maximum height in a short time is known as acute cystitis. In this class of cases the infection is intense, the constitutional disturbances well marked, and the nature of the pathological products in accordance with the acuity of the inflammatory process. One of the best illustrations of what is meant by acute cystitis is furnished by cases of urine retention in which infection occurs by the use of the catheter. The disease is usually initiated by a chill followed by febrile reaction; the urine becomes turbid within twenty-four hours, and in a few days contains large quantities of pus, and ammoniacal decomposition is developed very rapidly. It is not difficult in the majority of cases to establish the existence of acute cystitis, but such a diagnosis no longer satisfies the surgeon who seeks to complete his diagnostic work by investigating the pathological anatomy of the disease and by ascertaining the nature of the infection. Under appropriate treatment an acute cystitis may be under control in a short time, but in the presence of obstructive or visceral lesions the acute symptoms subside in the course of time, when the disease only too often passes into the chronic form.

(b) *Chronic Cystitis*.—Chronic inflammation of the bladder is characterized by the absence of acute symptoms, local and general, and the tendency of the disease to persist regardless of the treatment employed. The suppurative form of chronic cystitis is usually complicated by the coexistence of stricture of the urethra, enlarged prostate, or the presence of stone or foreign body in the bladder. Cystitis caused by infection from a suppurative affection of the kidneys is also very prone to pursue a chronic course, as the constant irrigation of the bladder with infected pus maintains an uninterrupted source of infection. The best example illustrating the clinical aspects of chronic cystitis is furnished by the tubercular variety. The disease begins insidiously by the appearance of isolated symptoms which point to the bladder as the probable seat of the inflammation. The symptoms gradually increase in number and intensity until the complexus is complete upon which to base a diagnosis of chronic cystitis. The symptoms are often masked by complications which served as predisposing causes or which ensued in consequence of the chronic inflammation. It is in cases of chronic cystitis that an early and correct diagnosis is so seldom made. Renal disease is often mistaken for cystitis, and cystitis for renal disease. It is in such cases that a recourse to all modern diagnostic aids is indispensable for a correct interpretation of the symptoms as they arise. It is not unusual that patients suffering from incipient tuberculosis of the bladder go from one physician to another, and are repeatedly sounded for stone in the bladder, when perhaps the results obtained from a careful examination of the external genitals and the prostate would at once arouse suspicions in

reference to the probable tubercular nature of the vesical affection. It is well to remember that in the majority of cases of chronic inflammation of the bladder not complicated by obstructive lesions the disease is of a tubercular nature.

4. BACTERIOLOGICAL CLASSIFICATION.—(a) *Bacillus coli communis* infection; (b) saprophytic (mixed) infection; (c) staphylococcus infection; (d) streptococcus infection; (e) streptococcus erysipellatis infection; (f) typhoid bacillus infection; (g) diplobacillus infection; (h) gonococcus infection; (i) bacillus of tuberculosis infection.

The bacteriological classification of cystitis is the most modern and certainly the most important. The bacteriological classification has a direct bearing on the etiology of the disease, and suggests to the surgeon the most rational course to pursue in its treatment. In long-standing and obscure cases of inflammation of the bladder, examination is not complete without an examination of the urine with sufficient care and thoroughness upon which to base a correct bacteriological classification. Surgeons must learn to appreciate the value and importance of this part of the examination before we can expect material advances in the treatment of cystitis. If the surgeon has not the necessary knowledge or equipment to make these examinations satisfactorily, he should assign this part of his task to a competent bacteriologist.

(a) *Bacillus Coli Communis*.—Bacteriological researches made by numerous observers go to prove that the bacillus coli communis is found more frequently in the urine of patients from cystitis than any other known microbe, and all combine in assigning to it a more or less important rôle in the causation of the disease. This micro-organism is constantly found in the contents of the normal intestinal canal. Its presence in suppurative affections in different parts of the body has been repeatedly demonstrated, and its pathogenic qualities have been carefully determined.

Myriads of the colon bacillus have been found in the urine without having produced cystitis. If in such cases another microbe finds its way into the bladder which will decompose the urine, cystitis invariably follows. The colon bacillus does not decompose urea. The ordinary pus microbes decompose the urine, and are almost constantly found in cases of cystitis in which the colon bacillus is found in abundance. The microbes which are known to decompose urea are bacterium pyocyaneus, cocci bacillus pyogenes ureæ, staphylococcus, and a special form of streptococcus found in decomposed urine.

All recent observations tend to prove that the colon bacillus requires the co-operation of urine-decomposing bacteria in the production of cystitis.

Colon bacillus infection should be suspected in all cases of cystitis following operations upon the rectum, and when the disease has followed or is coexistent with intestinal fermentation, irritation, or inflammation; also in cases in which the urine remains acid.

(b) *Saprophytic (Mixed) Infection*.—In more than one-half of all cases of acute and chronic cystitis, infection is the result of the presence and combined action of several different kinds of microbes. Pus microbes and the saprophytes decompose the urine, rendering it alkaline. Ammoniacal urine acts as an irritant to the mucous membrane of the bladder, producing textural changes which prepare the way for the action of the bacteria which are more directly concerned in the production of the inflammation. A mixed infection must be suspected in all cases in which the urine is ammoniacal.

Saprophytic infection is almost always associated with urine retention, and may precede or follow infection with the microbes which are the essential cause of the suppurative cystitis. It is in such cases that careful, systematic catheterization and antiseptic irrigations of the bladder prove of such eminent value in correcting the alkalinity of the urine and in arresting the suppurative inflammation.

(c) *Staphylococcus Infection*.—The staphylococcus pyogenes albus and aureus, the microbe most frequently found in all suppurative affections, has been often demonstrated as a solitary microbe, and in association with other pyogenic microbes and saprophytic bacteria, in the urine of patients suffering from catarrhal and suppurative cystitis. The staphylococcus is a comparatively mild microbe, and its presence as a sole microbic cause should be suspected in inflammatory affections of the bladder in which the infection does not penetrate deeply and in which the urine shows no evidences of exfoliation. In staphylococcus infection the urine may be ammoniacal without the presence of saprophytic bacteria, as pus microbes, when present in large numbers, decompose the urea, besides lighting up the suppurative inflammation.

(d) *Streptococcus Infection*.—That the streptococcus pyogenes is not often the cause of cystitis becomes apparent from a bacteriological examination of the urine from 6 cases of inflammation of the bladder made by Huber. He found this microbe only once; in the remaining 5 cases the bacillus coli communis.

Melchior found the urine acid in all cases of cystitis in which the streptococcus was found as a solitary microbe. It is well known that the streptococcus generally produces a diffuse form of inflammation, during which the connective tissue is often destroyed by the toxins and is later eliminated or removed in the form of shreds. The streptococcus invades the lymphatic channels and connective-tissue spaces, and is almost constantly found in phlegmonous inflammations and diffuse abscesses. A streptococcus cystitis is characterized by the intensity of the local and general symptoms and by more or less destruction of the tissues of the bladder wall. The presence of this microbe may be surmised in cases of diffuse interstitial and exfoliative cystitis.

(e) *Erysipelatous Cystitis*.—Erysipelatous inflammation, either as a primary affection or as a metastatic process, has been

found in many of the internal organs. Infection of the bladder with the streptococcus erysipelatis is extremely rare, but there can be no doubt of the possibility of such an occurrence.

Melchior reported the first and probably the only case of cystitis caused by infection with the typhoid bacillus. The patient had been convalescent from an attack of typical typhoid fever for fourteen days, and had been out of bed for three days, when he was attacked suddenly with a severe form of cystitis, for which there appeared to be no cause, as the catheter had never been used. For several days the urine was sterile and contained a large amount of pus and some blood. The typhoid bacillus was cultivated from the urine and was the only microbe it contained. In rabbits injections of pure cultures into the bladder, obstructed for eighteen hours by ligation of the penis, caused a severe cystitis. Intravenous injections caused death of the animals from typhoid fever with the characteristic anatomical lesions.

(g) *Diplobacillus Infection*.—The diplobacillus of Friedländer, which has been found in so many suppurative lesions complicating or following pneumonia, has in rare instances been found as the only microbic cause of cystitis.

(h) *Gonococcus Infection*.—It has been said that the gonococcus never causes cystitis, and that a gonorrheal urethritis, as long as it remains as an unmixed infection, does not extend to the bladder. It is claimed that when cystitis develops in the course of a specific urethritis it is the result of a mixed infection. This is undoubtedly true in the majority of cases, but occasionally a gonorrheal cystitis is met with in which the gonococcus is found as a solitary microbe in the urine. It is not always easy to demonstrate the gonococcus in the urine in gonorrheal cystitis. The reason why gonococci are not always found in the chronic cases, as Wertheim has pointed out, is that, while young gonococci are well stained with aqueous solutions of aniline colors, the old germs are pale and imperfectly defined. Moreover, gonococci assume "involution forms," becoming granular and of irregular form when the culture medium becomes old. These forms are not recognizable as gonococci, yet they can be regenerated to the classical form through a fresh culture medium. Gonorrheal cystitis presents itself more frequently in the form of a localized than a diffuse inflammation of the bladder. The favorite location for this form of cystitis is the trigonum of the bladder. If the disease becomes more diffuse, it manifests a tendency to extend in the direction of the kidneys.

(i) *Tubercular Cystitis*.—Tubercular cystitis furnishes the best clinical representation of chronic cystitis. With few exceptions, a primary chronic cystitis is of a tubercular nature. It is important to bear this in mind in the examination of all cases of cystitis in which the initial symptoms point to a chronic inflammatory process.

Tuberculosis of the bladder is caused either by infection with the bacillus of tuberculosis through the blood, by exten-

sion of a tubercular process by continuity of surface from the kidney or the genital organs, or by the rupture of a tubercular abscess into the bladder. Vesical tuberculosis is found more frequently in males than in females, and is usually a disease of early and middle life. Tuberculosis of the bladder in the male is generally associated with a similar affection of the seminal vesicles and prostate. Localization of tubercle bacilli in the mucous membrane of the bladder, like that of pyogenic and saprophytic bacteria, is favored by antecedent affections of the urinary tract. Primary tuberculosis from infection through the blood is so rare that König doubts its existence. Infection takes place most frequently from the kidneys, less frequently from the prostate, seminal vesicles, and epididymis. The resistance of the mucous membrane of the bladder to tubercle bacilli is great. In many cases tuberculosis of the kidneys may exist for several years without affecting the bladder. The mucous membrane of the bladder can be irrigated with urine containing tubercle bacilli for years without becoming tubercular. Clado pointed out that tubercular granulations in the bladder do not, as is claimed by some authors, occupy the submucous tissue, but the mucous membrane itself—that is, the subepithelial layer. He believes that this is due to the presence of a well-developed capillary network in the mucous membrane, which determines localization of the bacilli floating in the general circulation. Secondary infection occurs most frequently from the prostate or the kidneys, and least frequently as a result of an ascending tubercular affection of the testicles. In other cases the bladder is involved by the rupture into it of a tubercular prostatic abscess, or by the extension along the ducts to the urethra and from there to the bladder. An ascending tuberculosis of the ejaculatory ducts in other cases precedes the bladder infection. A previous gonorrheal cystitis not infrequently prepares the soil for tubercular infection. König observed a case in which a turpentine intoxication first produced active symptoms in a case of latent catarrhal tubercular cystitis caused by a tubercular kidney.

Although no age is exempt, tuberculosis of the bladder occurs most frequently in men between 17 and 40 years of age. Baudet records a case in a boy 15 years old; in this case the earliest point of invasion, so far as could be determined, was the testicle, then the prostate and bladder, thence along the ureter to the kidney. Senn has seen, in a girl 9 years of age, a case of primary vesical tuberculosis that extended to both kidneys and proved fatal in less than a year.

The two places in which tuberculosis of the bladder is most likely to commence are the ureteral orifices and the trigone of the bladder. The former starting point of the disease is the rule when the bladder becomes involved by a descending tubercular ureteritis—that is, when the disease is secondary to renal tuberculosis; the trigone is usually the original seat of the disease in primary tuberculosis of the bladder, and in men also by the extension of the disease from the genital organs.

The tubercular disease here, as elsewhere, is characterized by the same chain of pathological changes—infiltration, caseation, and ulceration. Penetration of the bladder wall frequently leads to the formation of perivesical abscess and fistula formation, a part or all of the urine escaping through the fistulous opening. The chronic inflammation and the vesical tenesmus lead to great thickening of the wall of the bladder, sacculation, and diminished capacity of the organ. The extension of the tubercular inflammation over the surface and in the direction of the different tunics of the bladder wall is hastened in case the bladder becomes infected with pus microbes, which is so often the case, and which is so frequently caused by the needless use of instruments in the fruitless search for stone in the bladder, which a beginning vesical tuberculosis often mimics so closely. The complications most frequently encountered in postmortem examinations of patients who have died of the direct or indirect effects of tuberculosis of the bladder are tuberculosis of the lungs, kidneys, genital organs, and peritoneum, and perivesical tubercular abscesses with or without fistula formation. The disease is initiated by a frequent desire to urinate and by pain after emptying the bladder, with slight hematuria at longer or shorter intervals. Urination becomes more frequent as the disease advances, and after the neck of the bladder has been reached incontinence of urine becomes a conspicuous clinical symptom. The urine exhibits the same appearance and contains the same morphological constituents during the early stages of the disease as in cases of chronic catarrh of the bladder. In the beginning of the disease the urine is acid and contains pus, bladder epithelia, and a small quantity of albumin. If the kidneys are affected at the same time, the albumin is more abundant. If secondary infection with pus microbes or saprophytic bacteria has occurred, it is alkaline in reaction and often ammoniacal, and then contains also a larger amount of mucus and pus corpuscles and disintegrated red blood corpuscles, besides the large flat epithelial cells from the bladder. As soon as the cheesy material on the surface of the bladder softens and disintegrates, fragments of detritus are found in the urine. Tubercle bacilli are not always present, and their detection is often very difficult. Their presence can also be determined by cultivation on artificial nutrient media and by inoculation experiments. If, in cases of suspected bladder tuberculosis, the bacillus cannot be found, the injection of a few drops of the urine sediment into the eye, a joint, the pleura, or the peritoneal cavity of a rabbit or a guinea-pig, will often succeed in reproducing the disease, and upon the results of such experiments we must then base our diagnosis. The positive results of such experiments and the detection of bacilli in the urine do not enable us always to locate the disease anatomically; in other words, we must ascertain further whether the disease involves the kidney, the bladder, or the lowest portion of the urinary tract. Nitze's cystoscope is a useful diagnostic instrument in the hands of

experts. Finally, it may be stated that in all chronic inflammatory affections of the urinary organs it is necessary to make careful and often-repeated examinations, both of the general and local symptoms, for the purpose of locating the disease, as well as to determine its nature, which often can be done in a satisfactory manner only by making a microscopical and bacteriological examination of the urine. If this should still leave the diagnosis doubtful, a resort to inoculation experiments upon animals susceptible to tuberculosis becomes necessary as a decisive diagnostic test.

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DISEASES OF CHILDREN.

Angina, Chronic Recurring Exudative.—Fischl¹ describes a typical lacunar angina which is hereditary, occurs most frequently in the second year of life, returns after shorter or longer intervals, and finally becomes rare, or even disappears, at puberty. There seems to be a local and individual predisposition, and the children often become extremely nervous and anemic. Complications of endocarditis, nephritis, and bronchitis are not unknown in severe cases, which are probably caused by a diplococcus or streptococcus infection. Swelling of the nasal mucous membrane seems to be often associated and should be treated. During the attack local applications of bichloride of mercury (1:10000) are useful, and between attacks nitrate of silver (in stick) should be used. Tonsillotomy often causes no improvement.

Antenatal and Intranatal Factors in Neonatal Pathology.—J. W. Ballantyne² says, in his summary of an article which he calls "An Attempt to Explain the Peculiarities of the Morbid States of the New-born," that it is clearly evident that if the characters of the diseases of the new-born infant are to be understood it is essential that account be taken, not only of the facts that the infant's organism has just passed through a period of traumatism and is passing through one of readjustment to meet new requirements, but also that during the nine

months of intrauterine life which precede birth it may have been the sphere of morbid processes which have left their impress on it. It may come into the extrauterine environment already diseased or malformed, or predisposed to some pathologic development. Like pregnancy, neonatal life is an epoch which has a physiology in many respects peculiar to itself, and which borders very closely on the pathologic, tending very easily to pass over into it. In a certain sense the ordinary vomiting of pregnancy is to the uncontrollable form as the ordinary "physiological" jaundice of the new-born is to pernicious icterus neonatorum. Further, just as every woman brings with her into her pregnancy the results of her past pathologic history, so the new-born infant brings with him, out of his antenatal life into his neonatal existence, the effects of any morbid processes which may have attacked him *in utero*. In this way the pathology of pregnancy and the maladies of the new-born infant are both invested with peculiarities. *The peculiarities, therefore, of neonatal diseases are not inexplicable, but are the direct outcome of the action of the antenatal and intranatal factors on the organism at this period of life.*

Anomalous Papillary Action in Meningitis.—Albert Seitz³ reports a case of tubercular meningitis secondary to hip-joint disease in a boy 9 years of age. The anomaly in this case was that the patient's pupils were contracted to the size of a pin head in the dark and dilated widely in the light. The brighter the light the more quickly and widely they would dilate. This condition persisted until the death of the patient. The writer could not satisfy himself as to the cause of the anomaly.

Antitoxin Statistics.—Edwin Rosenthal⁴ says that no feature is so conspicuous that proves the specific character of antitoxin as a remedy in diphtheria as its influence on the mortality records of a city. He cites the statistics of Prof. Biggs, who conclusively shows the fall in the death rate in New York, Berlin, Paris, and Chicago. In Paris alone the monthly mortality before the "antitoxin period" was from 108 to 180; after the period it fell to 45–56. In Berlin before the period the death rate was 114 to 117, which fell to 47–54. In New York before the period it was 236 to 317, after the period 168–207. In Chicago, of 1,468 cases treated with antitoxin by the inspectors, the mortality was but 6.4 per cent; and of 1,112 cases injected during the first three days, but 2.5 per cent. The Philadelphia records present but a slight change. The author thinks it strange that a city that contains a thoroughly equipped bacteriologic and biologic laboratory, and which was among the first to give to the profession not only the product antitoxin but all the literature appertaining thereto, should be so far in the rear with its statistical results. Still, there is a decline in the mortality records—from 61.5 per cent to 27 per cent in twelve years—and the author observes that when we find that, without exception, there is a certain decline

in the death rate of all cities, whether it be large or small, the truth remains unquestioned that this is not from chance alone, but due to certain well-proved causes; and in the question of diphtheria, antitoxin remains as the only factor that has influenced all statistics in its favor.

A. Jefferis Turner^o presents the statistics of diphtheria mortality of the three principal Australian colonies for the past fifteen years, with special reference to the influence of antitoxin on the death rate. From the tables of the author it is seen that the average mortality during the eleven years of the pre-antitoxin period was 44.3 per 100,000 mean population, and during the four antitoxin years 18.7 per 100,000. With a population of nearly three millions, this represents a saving during the four years of about 3,000 lives. The highest mortality of any antitoxin year was much below the lowest mortality of any pre-antitoxin year.

A. Robin,^o roused to indignation by Dr. Herman's paper entitled "The Failure of Antitoxin in the Treatment of Diphtheria," writes at length in refutation of the charges therein made and invokes clinical statistics and scientific research in support of his argument. Some grave charges he discusses at length. These are: 1. Antitoxin has produced death. 2. It causes paralysis of the heart and other parts of the body. 3. It acts injuriously on the kidneys, skin, and joints. 4. It causes septic pneumonia and other complications. Robin says that when it is remembered that the diphtheria infection produces parenchymatous degeneration of heart muscles and kidneys, is often followed by post-diphtheritic paralysis and not infrequently complicated by diseases of the respiratory passages, it may well be questioned whether these complications can be attributed to the antitoxin. The increased frequency of these complications, if this be the case, may well be explained by the fact that antitoxin cures many grave cases, the very same which are likely to suffer from the complications named. Many authorities are quoted to prove that nephritis, paralysis, and other complications are no more frequent than before the use of antitoxin. As to the fatal cases attributed to the remedy, a few have been reported; and even admitting that antitoxin was the direct cause, they can be explained by idiosyncrasies such as are often manifested in the case of other drugs or by possible contamination of the antitoxin. "If antitoxin is a specific," argues Dr. Herman, "why does it not cure all cases?" Robin replies: 1. Because it is not used early enough, time being given for the streptococci to develop and produce their virulent effects. Hilbert found that when a mixed culture of diphtheria bacilli and streptococci is inoculated into animals afterward treated with antitoxin, the latter recover from the diphtheria but succumb to the streptococcus infection. But when the antitoxin is used early the streptococcus infection is averted. 2. It is not used energetically enough, too small quantities or at too rare intervals being administered. 3. There is a proportion of patients who

are so susceptible to the disease that antitoxin cannot cure them, just as there are patients suffering from malaria who cannot be cured by quinine, or syphilitics who are not cured by mercurials and iodides.

William P. Munn⁴ writes of the decrease in mortality since the introduction of treatment with antitoxic serum in Denver, Colorado. In the past four years, since the bacteriologic laboratory has been established and antitoxin administered, the city had about half as many cases of diphtheria as it had during six preceding years, with but one-sixth as many deaths from the disease. The mortality per cent has been decreased, by some influence, to less than one-third what it used to be, and this is for *all cases* without reference to treatment. When the cases for the last four years are divided as to treatment with and without the antitoxin, the difference in mortality is still more surprising: 607 cases treated *with antitoxic serum* had a mortality of 4.96 per cent, 570 cases treated *without the antitoxic serum* had a mortality of 18.6 per cent. As to the actual reduction in diphtheric prevalence and death loss due to the intelligent and purposeful application of preventive measures under the guidance of the bacteriologist, he says that by the gradual operation of the preventive measures that have been perfected during the past ten years the actual number of cases of diphtheria was reduced to a total of 3,449, or a saving of 5,444 cases of illness from this one disease. The actual number of deaths from diphtheria has been reduced from the probable total of 3,450 to an actual death loss of 963, or an actual saving of 2,487 lives. Had it been possible to apply the modern preventive methods of the last four years, with an average per annum of but 294 cases and 4 deaths throughout the whole decade, the actual saving of human life would have been still greater, approximating 3,200.

From complete statistical tables of 200 cases at the Monsall Fever Hospital, Manchester, furnished by A. J. Tonkin,⁷ the following deductions are made concerning the efficacy of antitoxin: 1. The general mortality rate is reduced. The mortality for cases treated during the first three days of illness is reduced to about 3 per cent and that for all other cases to about 12 per cent. 2. Laryngeal cases treated early are markedly affected for the better, the death rate being very considerably reduced. 3. The tracheotomy mortality is very much lessened. 4. There is less need for tracheotomy if treatment is begun early. 5. All ages and both sexes are equally affected. 6. The chances of nephritis are lessened. 7. When treatment is begun early, albuminuria may not appear, will probably not be severe, and will disappear soon. 8. Paralysis is lessened for cases treated on the first and second days of the illness. The paralysis mortality is much reduced. 9. Extension of the disease to the larynx and parts below was not noted after injection of the antitoxin. 10. The only disadvantage noted after its use was a slight discomfort for a few

days from urticarial rashes and pains in the joints in a small percentage of cases.

Wenner⁸ gives the results of four years' use of the anti-diphtheritic serum, beginning in the fall of 1894. He found a very marked lowering of the mortality rate in all cases so treated, when compared with that of previous years. Even in operative cases the difference was a decided one. The temperature falls rapidly to normal after an injection of antitoxin, whether given early or late in the disease. The pseudo-membranes are loosened, and signs of laryngeal stenosis are distinctly influenced for the better; in fact, a spreading of the lesion from the pharynx to the larynx, or an exacerbation of the laryngeal symptoms, was never noticed after the serum was given. Severe albuminuria, nephritis, and paralysis must be looked upon as caused by the diphtheria poison and not by the antitoxin. The exanthemata caused by the serum are never of any great consequence, although often accompanied by fever. No death and no injury to health occurred from the use of the serum, which is heartily recommended, not only for use in all public institutions, but also in private practice.

Bacterium Coli, Virulence of, in Children's Stools.—Mellin¹ isolated the bacterium coli from the stools of one healthy infant and from 21 cases of gastro-enteritis. Experiments on animals proved that the virulence of these germs varied greatly, causing death in a few hours, or again calling forth only transitory symptoms of illness. The colon bacillus obtained from the healthy child was not pathogenic. It is probable that we have a pseudo-colon-bacillus as well as a virulent one to deal with.

Chorea and Fever.—Witthauer¹⁰ could find no analogous case to the following one reported in medical literature. A boy of 6 years, previously healthy, was suddenly attacked with convulsions after being punished in school. Since then the twitchings were so persistent and severe that two people could hardly hold him; only fluid food could be taken. While the boy was much emaciated, all the internal organs were normal. The temperature was slightly elevated, but became high (40.9° C.) upon the appearance of a gastro-enteritis. At the same time the twitchings grew markedly less, and ceased altogether after the temperature had fallen by crisis to 35.8° C. The child then lay quietly in bed and slept a great deal. In a second case, a girl 12 years old, in whom chorea followed rheumatism and endocarditis, the twitchings also ceased when the temperature rose during an attack of pericarditis.

The author cannot explain the fact that the choreic movements ceased permanently in two cases after the occurrence of fever, as experiments are necessary to do this.

Calomel in Diphtheria.—T. D. Coleman⁶ states that in an experience extending over nine years he has had only one death to record when mercurial treatment was employed, and this case was malignant from the start, the membrane involving the nose, pharynx, and trachea. His rule is to give a large

dose of calomel at the beginning, regulating it according to the age, and then to give hourly doses until the regulation "chopped spinach" movements appear, after which the interval is increased until the drug is left off entirely. The ability of the patient to take heroic doses the author considers to be due to the fact that the ordinary physiologic effect of the drug is overcome by the poison or toxin of the disease. He does not believe that it produces anemia, because he believes that the disease itself does this profoundly, and any drug which so certainly cuts the disease short would by that much prevent those blood changes which are responsible for the anemia. He has never seen any disagreeable effect whatever resulting from the administration of the drug.

Constipation in Infants.—H. M. McClanahan⁹ thinks that the causes of this condition in infants under 6 months may be grouped under two heads: 1, the quantity, quality, and method of feeding; and 2, the anatomic condition of the colon. In the first class each case should be studied separately; but as a rule the percentage of fat should be increased and the percentage of casein reduced, the latter when the stools are light-colored and dry. Sometimes milk has to be peptonized; sometimes the addition of a teaspoonful of malt extract at each feeding is most useful. Drug treatment may consist of the resin of podophyllin, given in alcohol in doses of from $\frac{1}{10}$ to $\frac{1}{4}$ grain. If the discharges are coated with mucus, a saturated solution of sodium phosphate with a little orange juice added is good. Muscular debility, indicated by tympanites and flabby muscles, will require strychnine and nitric acid. Massage, general and local, is of benefit. In the second class cathartics are dangerous. The colon, being longer and more loosely attached than in the adult, doubles on itself and closes the lumen. Digital examination per rectum is not only necessary to the diagnosis, but is valuable as treatment, stimulating peristalsis. Injection should be used daily, by means of a lisle-thread catheter passed through a cork attached to the tube of the fountain syringe and inserted about two inches into the bowels. The cork is pressed against the sphincter, and as the water flows the catheter is to be gently pressed upward. Cases of this class require continuous treatment for many months.

Diabetes Mellitus following Mumps.—H. F. Harris¹¹ reports and describes a case clinically and pathologically, and says that diabetes may follow mumps so quickly that there is at least a strong suspicion that the former disease may be induced by the latter. It is not probable that the diabetes is the result of changes produced in the salivary glands, but their removal in dogs is followed by a slight glycosuria. On account of the close resemblance in structure between the salivary glands and the pancreas, it would seem probable that a general disease like mumps, which causes changes in the one, would at times likewise produce alterations in the other. There is no well-authenticated case of pancreatic inflammation following mumps, but in at least one case there is suspicion of

its having done so. Inflammatory changes having once been set up in the pancreas in some instances, they might become chronic, causing serious alterations in function. Disturbed functional activity of the pancreas, if marked, probably always leads to diabetes. Alterations in the pancreas and salivary glands, which are in every way similar, occur in at least some cases of diabetes. These alterations are apparently produced by some general cause which acts on all of the glands belonging to this particular group.

Heart Disease in Childhood and Youth.—Charles W. Chapman¹² says that the chief signs of cardiac distress for which parents or other custodians of children may be on the lookout are: 1. Palpitation. 2. Breathlessness, especially if easily provoked. 3. Cyanosis. 4. Hemoptysis, indicating pulmonary congestion and increased strain at the right side of the heart—common in mitral stenosis. 5. Pallor, showing failure on the systemic side. This is most apt to occur in aortic cases, leading to faintness or actual syncope. Cases of mitral stenosis and of advanced regurgitation bear strain badly, moderate aortic stenosis or regurgitation better. Faintings in churches and hot rooms are not uncommon in the less robust children. That these cases may be cardiac in their origin is true, but a critical examination of the heart frequently gives a negative result. Some cases can be explained by the child having been hurried to church soon after a heavy or indigestible meal, by intestinal worms and the *petit-mal* of epilepsy, or by albuminuria. But the faintings are in many cases inexplicable except on the theory of air hunger due to a cardiac lesion. The chest should, in doubtful cases, be re-examined at intervals. In the care and treatment of children affected with heart disease no detail is too trivial for consideration. The points to be considered are: 1. Clothing. 2. Place of residence. 3. Diet. 4. Education. 5. Exercise, sports, and games. As to clothing, rheumatism having such a tendency to recur, and each attack usually further damaging the heart, the skin must be protected by woollen underclothing all the year through, the weight being varied with the seasons. If choice can be made as to locality, a gravel subsoil should be selected. The house should not be surrounded by trees and should stand at a fair elevation. A southern or western aspect is to be preferred. Valleys are objectionable. The diet must be carefully regulated, because indigestion in its various forms is very common in heart disease, and because, on the other hand, pure indigestion is responsible for many symptoms which strongly simulate or are identical with those observed in actual cardiac affections. Food should be taken *at regular intervals*, and a rest afterward for from ten to thirty minutes must be insisted upon. No hard-and-fast rule can be given as to the nature of the diet. Anything which is liable to cause flatulence, such as farinaceous foods, the starchy part of vegetables, salads, etc., would better be avoided, as also sweets and “made” dishes. Alcohol is, as a rule, not required, except in

emergencies. Milk with lime water, or the white of an egg with lemon juice, are good pick-me-ups. Where there is a tendency to faintness, beef tea, to which a small quantity of brandy is added, is very efficacious. Care must be taken to discriminate between real faintness and the sense of sinking felt at the epigastrium which is caused by indigestion. Education is often neglected in children with heart disease, the friends thinking it unnecessary to bother the child with lessons when its span of life will probably be so short. This is a mistake, for the improvement which follows treatment in heart cases is at times marvellous. Moreover, mental occupation keeps the patient from dwelling too much on his illness. If he has a hobby it should be encouraged. He should be carefully watched to see that the health is not injured by overwork. Exercise and sports should not be cut off, unless there is an absolute necessity for so doing. Some forms of exercise, such as swimming, football, running, paper chases, etc.—games which demand sustained competitive or sudden exertion—are bad for all cases of organic heart disease. Cycling should be avoided in aortic regurgitant cases. Walking is good exercise, but children are apt to exhaust all their strength on the outward journey, and not to give in until obliged. Exercise requiring fixation of the chest is bad in heart cases. The medical attendant should try the effect of a few “resisted exercises” on the patient before giving directions for the home treatment, noting the position and force of the apex beat, the character and frequency of the pulse, and, as far as possible, the area of cardiac dulness, both before and after. The great point is not to attempt too much at the beginning of practice. In regard to therapeutics, remedies can be prescribed for heart disease with a fair assurance of obtaining definite results. It is a mistake to prescribe digitalis simply because a bruit has been discovered. When there are signs of downward progress—such as increased or increasing dilatation, liver and lung engorgement—at which time the presystolic bruit at the apex is apt to be less loud and the accentuation of the second pulmonic *less* pronounced, then is the time that drugs of the digitalis group are valuable and necessary. Free purgation, as a preliminary to the use of digitalis, is useful. Mercury in some form is as valuable for children with heart disease as for adults. The digestive organs will require frequent attention. Nux vomica is a valuable drug, but must be given in small doses and under watchful supervision. Alcohol is useful in emergencies, but otherwise harmful. Belladonna applied externally relieves cardiac pain and is best used as a liniment. Nauheim baths are rarely called for in the case of children, being of most use in arteriosclerosis. The exercises will be found useful in appropriate cases.

Hysteria in Children.—Edward E. Mayer⁹ thinks that the importance of heredity as a factor in the production of this disorder has been much exaggerated. Hysteric parents have hysteric children because the child is brought up, trained, and

developed by the parent, whom it consciously and unconsciously imitates. Hysteria is simply a discharge of morbid influences along the various motor and sensory paths, and improper home influence and training certainly promotes such morbid states. Other psychic moments are fear or fright. In the treatment of the affection too much severity is as bad as too much love. Parents are unfortunately unable to treat their children as desired, and for this reason isolation is necessary. The child, brought to a hospital, cannot call on weak parents to act against the injunctions of the physician, finds it will not get home until cured, is in new surroundings, has a strange physician—and all these factors work wonders. Visits and even letters should be stopped. There are two methods of treatment: first, ignoring the patient completely; second, allowing him no time to be cured. The latter is the best. As soon as the patient enters the hospital he should be kept on his feet, doing something until he falls asleep. If astasia-abasia is present the child should be set on its feet and told to walk; in hysteric aphonia, after passing a sound, it may be commanded to talk after removing it, or to cough, etc. In the other method no one should be allowed to speak to the child; it may be ignored until the symptoms die of neglect. Massage and electricity, hydrotherapeutics, careful dieting are all of use. Suggestion is of value; splints, casts, and embrocations have many times been applied to hysteric joints; tenotomy has often been proposed for hysteric contracture, or excision for a hysteric tumor. What enthusiastic charlatanism has done physicians can likewise accomplish.

Incontinence of Urine in Children.—Francis Huber,¹³ at the conclusion of a valuable article, gives the following classification of the causes of incontinence, which he does not claim to be a perfect one, because of the difficulty of the task. In many instances, he says, several factors are more or less intimately concerned in the etiology. Moreover, in a large number of the cases, there is an essential neurotic state or neuroses.

Varieties: Nocturna (common)—Diurna—Continua.

Three factors: Condition of sphincter, (b) bladder, (c) innervation.

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| (1) MALFORMATIONS | { Small meatus, small bladder (natural or acquired).
Hypospadia (perineal).
Exstrophy of bladder. Epispadia. |
| (2) ORGANIC DISEASE
OF
NERVOUS SYSTEM | { Idiocy, cerebral palsy, meningitis, ch. hydrocephalus, myelitis, injuries of cord, and Pott's disease with compression or inflammation of cord. |
| (3) FUNCTIONAL (?)
DISORDERS | { Epilepsy, chorea, diabetes (mellitus and insipidus).
Hysteria, neurasthenia, anemia resulting in poor innervation and muscular development. |
| (4) WEAK SPHINCTER | { a. Infantile condition persisting.
b. General muscular incompetency, or
c. Result of exhausting diseases, lowered vitality general anemia. Neurotic state. |

(5) IRRITABILITY OF BLADDER	a. Inflammatory processes	{ Urethritis, balano-postitis, vulvo-vaginitis, cystitis, nephritis, pyelitis, rectal catarrh, chronic inflammation of prostatic portion and neck of bladder due to masturbation.
	b. Local	{ Stone, polypoid excrescences at neck of bladder, hyperacid urine, excess of urates, oxalate uric acid, concentrated urine, excess of phosphates due to digestive disturbances and imperfect assimilation. Bacteriuria.
	c. External (reflex)	{ Periurethral and perivesical inflammation. Phimosis, preputial adhesions and balano-postitis, urethral inflammation, vaginal catarrh, rectal catarrh, irritation due to pin-worms, constipation, hardened feces in rectum, fissure and polypoid of rectum.
	d. Distended bladder	{ Excessive secretion of the urine due to large amounts of fluids ingested; diuresis due to drugs, alcohol, tea, coffee, etc.
(6) DEFICIENT INNERVATION	Emotional	{ Mental excitement—eager play. Fear of darkness or cold room. Wilfulness. Bad habits.
	Auto-suggestion	{ The child having wet the bed, and having been scolded or punished, the habit continues through fear. Dreams.
	Undue excitability of sphincter	{ Neurotic state. Masturbation. Sleeping on back.
	Enfeeblement of will	{ Anemia, hysteria, neurasthenia. Lymphatism (adenoids).

Infantile Scurvy.—Francis Huber¹⁴ reports a case of a mild type. The cases thus far studied, he says, have occurred in children brought up on condensed milk, artificial foods of various kinds, sterilized milk diluted with water or cereals. The patients, without exception, belonged to the better classes, and all were rachitic. The prominent symptoms were tenderness, restlessness, and prolonged spells of screaming and crying; no digestive disturbances, vomiting, colicky pains, etc., were noted. Though fed regularly, they never seemed to have enough. The duration of the symptoms varied from a week to several months. In not a single case did hemorrhages occur, and in but one instance were slight swellings observed. Though the two symptoms—marked rigidity of the thighs and inability to move the lower extremities—so characteristic of se-

vere cases—were absent, the legs were stiff and did not move with the freedom observed in health. In such cases the administration of fresh fruit juices as a routine plan, and the change from sterilized to slightly boiled milk, will often work wonders.

Inguinal Hernia in the Young.—R. Hamilton Russell¹⁶ has an exhaustive article on this subject. He is of the opinion that inguinal hernia in childhood is always due to the presence of a congenital sac and that removal of the sac in early life cures the hernia. The author does not believe that an acquired inguinal hernia in a young person ever comes through the internal ring beyond a few rare exceptions. He dissents from the time-honored doctrine that operation for hernia in the case of a young child should never be undertaken when the hernia is susceptible of efficient control by a truss, as it does not seem possible to him that union of the opposing surfaces can occur through pressure. What really happens is this—the bowel being prevented for a time from entering the internal ring, the inguinal sphincter gets, as it were, a fresh start, and, contracting around the neck of the sac, renders it, under favorable conditions, quite small, so that it will only admit a probe, and so the hernia is said to be cured. As a matter of fact, the hernia has only been obscured, and experience has abundantly shown the author that there is no real security against the return of a hernia after it has been made to disappear by the use of a truss. It is not uncommon for a hernia to appear suddenly, and it is thought for the first time, during the period of adolescence or the earlier decades of adult life during the performance of some arduous feat. It must be clearly understood that a young man in whom an oblique hernia appears in this way has had a preformed sac, and it is exceedingly probable, if inquiry is made, that the patient will be found to have been in childhood the subject of hernia that was supposed to have been cured by means of a truss. The method of operation followed by the author is as follows: The incision is made in the groin, parallel to Poupart's ligament, the cord is sought for, the coverings of the cord successively opened, and the cord, sac, and testicle drawn out of the scrotum. The sac is freed from all the other structures as high up in the canal as possible. A chromicized catgut ligature is now applied to the neck of the sac in the form of a Staffordshire knot, and the sac removed. The superfluous coverings of the cord are cut away, and the testicle carefully washed and dried and replaced in the scrotum. The wound in the groin is closed by the subcuticular method of suturing, and dressings applied. In other words, the simple removal of the sac affords an absolutely reliable and permanent cure in every case of inguinal hernia in a child. The operation is, of course, much simpler in female children, and can easily be done in five minutes, so that the application of a truss to a girl's inguinal hernia is absurd.

Malarial Fever in Infants and Children.—Floyd M. Cran-

dall¹⁶ says that malarial fever was formerly supposed to be rare in infancy, but is now known to be common. It manifests itself, however, in somewhat peculiar forms in the early years of life. The first peculiarity is in the behavior of the paroxysm. Instead of a true chill, the child becomes blue and the features are pinched; the hands and feet are cold; the skin becomes shrivelled and mottled or studded with small, elevated points. This may continue from five minutes to half an hour. Even this may be absent, but there is usually at least a vestige of a cold stage. Vomiting is almost the rule, and sharp epigastric pains are common. The third stage is also less well defined than in the adult. Sweating is rarely profuse and is often lacking or delayed. In the stage of fever the temperature is apt to range very high, 104° to 105° F. or higher being not uncommon. Nervous symptoms are prominent. The paroxysm may be ushered in by a convulsion. Broken sleep and terrifying dreams are common. Enlargement of the spleen is an important symptom. Anemia is a constant accompaniment of malarial fever. Bronchitis is of frequent occurrence in malarial infants and children. Diarrhea is common, but constipation even more so. Acute malarial fever usually assumes the intermittent type, or it may become remittent. Under 4 years tertian intermittent fever is rare. The quartan type is unknown, the invariable type in infants being the quotidian. In the chronic malaria of infants and children there is but little fever, but anemia and emaciation are marked and progressive. The skin is dry and parchment-like, the digestion deranged, the spleen enlarged. The diseases most commonly mistaken for malaria are chronic intestinal indigestion, tuberculosis, septic infection, and, in older children, typhoid fever. Demonstration of the plasmodium renders the diagnosis certain, and the treatment test by quinine is very important. Treatment should begin with free catharsis by small, repeated doses of calomel. Quinine is the only drug upon which reliance can be placed, but, although well tolerated by children as to its physiological effects, is in many cases not tolerated by the stomach. It should be given in solution. The taste is well covered by syrup of yerba santa, or equal parts of simple syrup and simple elixir may be given. If the dose is to be small, tablets of quinine and chocolate may be employed. Quinine may, when necessary, be given by suppository or rectal injection. In rare cases it may be given hypodermatically. A child of 1 year may safely take five-eighths of a grain daily, or more. In chronic forms of malaria arsenic should be given besides quinine. Acetanilide relieves the neuralgic pains. Iron can be given for the anemia when the paroxysms have been broken.

Milk Coagulation in the Human Stomach.—Schnürer's¹⁹ experiments with milk-fed infants warranted the following conclusions: The stomach contents of healthy infants, as well as of those affected with gastro-intestinal disorders, contain active rennet (lab) ferment half an hour after the ingestion of

cow's milk. At this time the entire casein has become transformed into an insoluble state. The coagulation of cow's milk in empty stomachs is due to the rennet ferment. When it is remembered that within half an hour after meals the amount of acid in the stomach is still very limited, it becomes probable that no appreciable quantity of milk can be coagulated by this means.

Neurotic Spine.—Henry Ling Taylor¹⁷ says that no deformity characterizes this affection, which is not due to a lesion of the spinal column nor even to a gross lesion of nervous structures, but rather to the patient's nutrition and morale. It is a functional disorder, sometimes responding readily to appropriate treatment, at others baffling the most skilful therapist and driving the relatives to despair. Neurotic spine is a weak back associated with certain general and local symptoms. The patient tires easily, and often is able to walk only short distances, sometimes not at all. There is a great deal of backache, particularly in the lower part of the back, and there are usually distinct points of tenderness over certain spinous processes; such spots may be found just below the occiput, between the shoulders, and in the lumbar region. Pressure on these points may cause nausea. It should be borne in mind that in disease of the vertebra there is practically never localized spinal tenderness, and that the characteristic pains of Pott's disease are in front or at the sides. In neurotic spine there is often tenderness over the sacro-iliac synchondroses, over the iliac crests, in the iliac fossæ, and elsewhere. The tenderness is often a sensitiveness to slight contact. Jolting, sneezing, and coughing do not usually hurt these patients, as they do kyphotics, and the characteristic attitude is absent. The author has several times observed neurotic spine in girls of 14 or under. He describes a case.

Night-Terrors.—E. Graham Little,¹⁸ from cases examined, gives it as his opinion that: 1. Night-terrors are in the great majority of cases caused by disorders productive of moderate but prolonged dyspnea. 2. A preponderating number of cases is found in rheumatic subjects with early heart disease. 3. A considerable proportion of cases is due to obstruction of nasal cavities and fauces. 4. Digestive disturbances do not play the important part in causation that is often assigned to them. 5. The evidence for their causal connection with epilepsy or allied neuroses is scanty. 6. The attacks occur in the subconscious stage of early sleep, and are confined to young children under puberty.

Polyposis Intestinalis.—Vajda¹⁹ reports a case occurring in a boy of 9 years, of good family history, who had had fluid stools, usually bloody and accompanied by tenesmus, since an attack of pertussis three years before. Prolapsus ani occurred, and polypoid masses were seen upon the prolapsed intestine which made a tumor as large as an apple. The general condition became very bad; there was edema of the face and extremities, and death resulted from exhaustion. The autopsy

showed thrombosis of the inferior vena cava, with embolism of the right pulmonary artery and an extensive polypoid colitis. The larger polypi were pedunculated, the smaller sessile. They were most numerous in the cecum, some being present in the ileo-cecal valve; many were in the ascending colon, but almost none in the sigmoid flexure; in the lower rectum they were again numerous. The largest polyp was as large as a shelled almond; between the growths the mucous membrane appeared pale and edematous. Microscopically Lieberkühn's crypts were seen to be elongated, branched, and filled with mucus; nowhere did they penetrate the submucosa or muscularis. The growths were simple mucous polypi. Of 13 other reported cases, only 2 were under 12 years of age and 7 between 12 and 20. The duration of the disease is from two to fifteen years, and only 4 cases recovered. The complications which may occur are prolapsus ani or recti, invagination, and carcinoma. The only effectual treatment is the removal of the entire diseased gut; this is only possible in rectal cases. A palliative operation is the formation of an artificial anus, preferably in the lowest part of the ileum. Nothing is known of the etiology.

Rachitis, Treatment of, with Thymus Extract.—Stoeltzner and Lissauer¹⁹ treated 6 cases, varying from 5 to 14 months in age. Those under 1 year old were given two tabloids a day and those over 1 year received three. The treatment was continued from two to three months. In no case did any improvement occur, either in the nervous symptoms or in the bone lesions. On the contrary, the latter seemed to grow steadily worse, and the fontanelle certainly increased in size. For these reasons the treatment was discontinued.

Rest in Bed after Acute Cardiac Inflammations in Children.—L. Emmett Holt¹⁴ says that there are three reasons why cardiac inflammations are likely to be especially serious in young children: 1. The frequency with which both the endo- and pericardium are involved. 2. The great tendency to acute dilatation. 3. The liability of these attacks to be complicated by pneumonia. The cardiac muscle, like the voluntary muscles in young children, has not the resistance which it attains later, so that under the strain of an acute inflammation dilatation comes on very readily and progresses more rapidly than in adults. The danger of dilatation is much increased in cases complicated by pericarditis. It is largely owing to rapid dilatation that so many cases succumb during the acute attacks, and it is usually in consequence of progressive dilatation that cardiac failure, with dropsy and all its attendant features, so often follows within a few months after the primary attack. This condition of the heart walls must be the chief consideration in the treatment of acute attacks, not only during the period of active inflammations, but for a considerable time afterward. The author advises nearly absolute rest for months, not merely weeks, after acute symptoms. It is almost impossible to control the amount of exertion taken

when once they are allowed out of bed. In few things are physicians more blameworthy than in allowing children to get up as soon as acute symptoms have subsided, after they have suffered either from acute cardiac inflammations or from general infectious diseases (especially diphtheria, scarlet fever, or typhoid) of severe type and in which the heart muscle has been affected.

Scorbutic Membranous Colitis.—J. Henry Fruitnight¹⁴ reports a case of scurvy in a boy of 9 years, in whom there occurred a severe attack of colitis, accompanied by so much pain that he almost went into collapse. The temperature rose to 102°, and the pulse became feeble and flickering. The pain was overcome by opiates, an enema of hot soapsuds and oil was administered, and with the free evacuation secured came away a piece of pseudo-membrane about five inches long and two inches wide, mucoid in character, dark red, and very friable. The scurvy was overcome by quantities of fruit juices, beef juice, a mixed diet, and country air. The author has never before come across a case of scurvy accompanied by the expulsion of a pseudo-membrane. Extensive ecchymoses, as for instance in the conjunctiva, are often met with, and he thinks it probable that in this case there was an ecchymosis in the mucous membrane of the lower portion of the descending colon, and that in due time the pseudo-membrane was cast off. The patient never had an attack of this description before nor since.

Simultaneous Appearance of Scarlatina and Measles in the Same Individual, and the Influence of One upon the Other.—Rolly¹⁵ reports the case of a girl 18 months old, of good family history, non-rachitic, who became suddenly ill with fever, vomiting, photophobia, and coryza. A scarlatinal exanthem appeared on the second day; there was some bronchitis. On the following day another eruption developed, in elevated, large, darker spots, more marked on the trunk than on the extremities and face; there were also some papules on the soft palate, but Koplik's spots could not be found. Measles was then diagnosed in addition to the scarlet fever. The measles eruption became hemorrhagic. The tongue was typically "strawberry." Improvement began on the fifth day, and desquamation in large patches commenced on the tenth. During the second week a trace of albumin was found in the urine and furuncles developed. Recovery was complete in three weeks.

There are only four other cases reported in which the eruptions appeared at an interval of three days or less. When a longer time elapses between the onset of the two, it is more proper to consider them as following each other than as occurring coincidentally. It is certainly true that scarlatina and measles can occur simultaneously and each run its own course, as if it alone were present, neither influencing the other. But when the interval between the two onsets is a longer one, scarlet fever following measles has a better prognosis than measles following scarlet fever.

Tetanus Successfully Treated with Antitoxin.—John D. Rice²⁰ reports a case in a boy $4\frac{1}{2}$ years old, due to biting his tongue at night. A large quantity of the antitoxin was required, 110 cubic centimetres being injected in 10 cubic centimetre doses. There was no abscess at the seat of infection, and no complications except an erythematous rash and an enlarged gland.

Tuberculosis, Some Antenatal Aspects of.—J. W. Ballantyne²¹ says that, in the *first* place, it must be accepted that the fetus may, during at least the second half of intra-uterine existence, become tubercular. Women in an advanced stage of tuberculosis have become pregnant and have given birth to fetuses or to infants which soon after birth died; tubercle bacilli have been found in the fetal tissues and in the placenta, and blood of the umbilical vein; and inoculations of the fetal tissues and of the placenta into rabbits and guinea-pigs have led to the development of tuberculosis in these animals. Cases have been reported fulfilling all the somewhat exacting requirements of the scientific definition of congenital tuberculosis and removing all doubts as to the occasional occurrence of prenatal infection of the fetus with tubercle. In the *second* place, while cases of fetal tuberculosis have undoubtedly been met with, their number at present is very small, and their morbid anatomy differs somewhat markedly from that of instances of tubercle in the adult. Since the bacilli reach the fetus by the umbilical avenue of entrance, it is to be expected that the distribution of the lesions will differ from that found when they are introduced through the respiratory or alimentary canals. Theoretically it is to be anticipated that tubercular lesions will be met with in the liver, spleen, heart, brain, etc., rather than in the lungs. There is a further reason why the lungs should not often be affected, viz., the amount of blood which passes to them is very small during the whole of fetal life. In the *third* place, information is much needed on certain aspects of the problem of antenatal infection. A careful examination of all fetuses and dead infants born to women suffering from any form of tubercular infection should be made, and it is essential that this examination should consist not only of a microscopic inspection of the tissues, but also of inoculation experiments with the fetal organs. Further information is also urgently required regarding the conditions which diminish the protective filtering action of the placenta. In the meantime, judging from the small amount of knowledge we possess as to the passage of other microbes through the placenta, it may be hazarded that lesions (especially hemorrhagic in their nature) of the placental substance, the supervention of a second infection, the presence of certain poisons, such as alcohol, in the maternal blood, and possibly the prolonged propinquity of the bacilli to the placental tissues, are all conditions which favor the breaking down of the placental barrier. A healthy placenta is the best friend that the fetus of a tubercular mother

can have. In the *fourth* place, cases of fetal tuberculosis, such as those which have been referred to, are not truly examples of hereditary tuberculosis; they are instances of fetal infection. The problem of true tubercular heredity belongs probably to the germinal period of intrauterine life, when the specialized reproductive cells are subject to all the chemical and vital changes which are taking place in the body of the individual who bears them.

Urticaria Pigmentosa.—Winternitz²² demonstrated the case of a baby, 1 $\frac{3}{4}$ years old, in whom urticaria pigmentosa had persisted since the third week of life. It began with fever, and consisted of red patches simulating scalds. These later became yellow, then brownish and flat; occasionally they became elevated and red.

Ununited Fracture in Children.—F. A. Southam²³ reports two cases. In the first, union failed to take place after simple fracture of the tibia and fibula. The fragments were resected and wired, but the only result was a fibrous union after a period of four and a half years. In the second case there was non-union of the tibia and fibula after operation for correction of curvature. Two subsequent osteoplastic operations were followed by fibrous union, but it was thought best finally to amputate the leg, as it was a source of inconvenience to the patient from its flail-like condition. The author observes that though instances of delayed union are not uncommonly met with in the shafts of long bones after fracture in children, true non-union—"pseudoarthrosis"—as illustrated in these two cases, where more than four years had elapsed since the receipt of the injury, with only a uniting bond of fibrous tissue, is of rare occurrence. It would appear that in children, contrary to what is met with in adults, the tibia and fibula are the bones which are most commonly the seat of non-union after fracture. Another point of considerable interest is the fact that treatment of ununited fracture in children is very unsatisfactory, resection of the ends of the bones, bone-grafting, and wiring and pegging together of the fragments failing in a large number of cases.

Vaccinoid.—F. Forchheimer¹³ says that the peculiar manifestation of vaccinia referred to has been known to exist for some time, being usually denominated false or spurious vaccinia. To French authors especially is due the credit of having studied the subject. Hervieux divides the manifestation of vaccinoid into three classes: 1. After a period of incubation of about twenty-four hours there appears a pink papule without areola, which disappears in a few days. 2. With the same period of incubation a larger papule develops, which has a small vesicle developed upon its surface and is surrounded by redness. The vesicle forms a small scab, which falls off and does not leave a cicatrix. 3. Again the same period of incubation, a larger papule with better defined redness, a larger vesicle and crust, and finally the production of a cicatrix, which, however, does not persist. It will be seen by this classification

that by vaccinoid is meant an atypical course of the lesions produced by the act of vaccination, these having, in their external manifestations, the same relation to vaccinia that varioloid has to variola. The author has himself, in the course of experimentation, succeeded in producing a number of vaccinoids. His conclusions are: 1. Vaccinoid is always modified vaccinia. 2. Vaccinoid protects against variola. 3. The protection is less than that of vaccination. 4. Vaccinoid in the majority of instances is due to faulty method, rarely to increased resistance or immunity. 5. In primary vaccinations vaccinoid should always be followed by repeated attempts until either true vaccinia is produced or until positive evidences of immunity exist. 6. In the presence of an epidemic of variola, vaccinoid should be followed by revaccination both in primary vaccinations as well as in revaccinations.

Vomiting and Cardiac Failure in connection with Diphtheria.—F. Villy²³ thus concludes a study upon the subject, based upon 9 cases of his own and the analysis of 1,176 other cases. From the clinical evidence it may be deduced that: 1. Signs of heart failure are much more common than are paralyses in other parts, and have an earlier date of onset. 2. They are such as may be ascribed to muscular failure. 3. When vomiting occurs heart failure generally follows. 4. The date of onset of vomiting and heart failure is distinctly anterior to that of paralysis in other parts. From the pathological data it appears that: 1. Evidence of degeneration and inflammation of the mucous membrane of the stomach is constantly present and is often accompanied by hemorrhages. 2. The heart muscle is constantly found to be in a degenerated condition; hemorrhages are commonly present. The combined evidence obtained from both sources points to the cause of vomiting and heart failure as lying in changes of the gastric mucous membrane and of the heart muscle, nerve lesions probably taking but little part in the production of the phenomena. Vomiting, by the strain it throws upon the heart, and possibly through a reflex nervous mechanism, may produce heart failure.

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ITEM.

COMPETITION FOR THE AMERICAN MEDICAL ASSOCIATION MEDAL.—At a meeting of the American Medical Association, held June 4, 1897, it was resolved to restore the former policy of the Association in favor of offering annually a gold medal for meritorious scientific work. The committee for this year, consisting of Drs. George M. Gould, of Philadelphia; E. Fletcher Ingals, of Chicago; and T. W. Huntington, of Sacramento, Cal., desire to direct attention to the following rules governing the competition:

1. The medal shall contain the seal of the United States or a seal of the Association, to be hereafter designed, on one side, and an Esculapian staff on the other, together with the name of the recipient of the medal and suitable inscriptions.

2. The commercial value of the medal shall be \$100.

3. A standing committee on prize medals, consisting of three members of the Association, shall be elected by the Business Committee as follows: one for one year, one for two years, and one for three years, and thereafter one to be elected yearly to hold office until in either case his successor has been duly elected. In no case shall a member of the Business Committee hold a place on the Committee on Prize Medals.

4. The competing essays shall be typewritten or printed and shall bear no mark revealing their authorship; but instead of the name of the author, there shall appear on each essay a motto, and accompanying each essay shall be a sealed envelope containing the name of the author and bearing on its outer surface the motto of identification. No envelope is to be opened by the committee until a decision has been reached as to the most deserving essay and the other essays have been returned to their respective owners. The committee shall have authority to reject and return all essays in case none have been found worthy of the Association medal. Competing essays must be in the hands of the committee not later than March 1, 1900. For further information address any member thereof.

THE AMERICAN JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

VOL. XLI.

MARCH, 1900.

No. 3.

ORIGINAL COMMUNICATIONS.

EXTRAUTERINE PREGNANCY, EARLY TUBAL RUPTURE;
DEVELOPMENT OF FETUS TO TERM FREE IN THE
PERITONEAL CAVITY:

CELIOTOMY; DELIVERY OF LIVING CHILD; RECOVERY OF MOTHER.

BY

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(With two illustrations.)

THE rarest accident of extrauterine pregnancy is the occurrence of the so-called free abdominal or intraperitoneal gestation. It has been generally assumed that this form of gestation is impossible on account of the digestive power or function of the peritoneum and its secretions. So infrequently has the condition so described been met with, and so inconsistent is it with the accepted theory of the carnivorous character of the peritoneum, that various theories are advanced to account for the occurrence of the seemingly impossible. Authorities whose statements would be accepted without question on other subjects are discredited on this, for the fetus can survive "only

when the rupture takes place into the broad ligament.”¹ In order to place the subject where it virtually stands to-day, I shall quote somewhat freely in point.

The views of Tait were perhaps the most important, and authoritative as embodying conclusions deduced from a critical analysis of the whole subject of extrauterine pregnancy down to his time. The classical case coming under the head of this paper, “The Jessop Case,” Tait describes as unique in the history of medicine. “It stands by itself and may, therefore, be known as *the case of intraperitoneal gestation.*”² But Tait, admitting the fetus was free at the time of the operation, believed it to have been of the late-rupturing broad ligament variety. Tait’s theories are not now all accepted. Primary rupture from the tube to the abdominal cavity, denied by Tait, has been accepted by more recent observers of advanced abdominal pregnancy.

Of more recent date are the writings of Mr. John W. Taylor,³ who gives reasons for his views: “When a fetus which has been already formed within the Fallopian tube escapes from the tube, enclosed in its unruptured membranes, into the abdomen of the mother, the pregnancy becomes ‘abdominal’ or ‘ventral.’ If the placenta retains its attachment to the tube and receives sufficient blood supply from the maternal blood vessels, the pregnancy may pursue an uninterrupted course to term and both child and placenta attain mature development within the peritoneal cavity of the mother. *The protection of the unruptured amnion, however, appears to be absolutely indispensable for this development* [italics mine]. The difficulty in believing this lies in the fact that in most of the recorded cases the child has been described as lying naked and uncovered within the peritoneal cavity of the mother. Our leading authorities have argued, and probably argued rightly, that no fetus at any early age could be so exposed to the peritoneal cavity and its secretion and yet survive. They have accordingly sought for some method of explaining how the facts established by observation—the intra-abdominal position of the child—could possibly arise. The theory advanced is that every extrauterine pregnancy which has survived the primary rupture of the tube and has continued its development has done so beneath the peritoneum, sheltered within the folds of the broad ligament; that here it has remained until the seventh or eighth month, and then a secondary rupture of the broad-ligament cyst has taken place and the child has escaped

among the intestines; its tissues having arrived at a period of development by that time which enabled them to resist the effort of digestion which doubtless would be directed toward them.

“Although those of us who had operated on cases of abdominal pregnancy at full term felt that this theory was far-fetched and mistaken, for no broad-ligament pouch from which the infant had escaped could then be found, and although the theory was more or less disproved by isolated cases of abdominal pregnancy reported, we could not be said to have any good explanation of the mystery to offer until a case operated at the Spark Hill Hospital for Women on December 11, 1896, brought further light and explained how the child could inhabit the peritoneal cavity of the mother and still survive. On careful examination of the abdominal cavity in this case it was found that a transparent membrane (the amniotic sac) surrounded the fetus and protected it in every direction, and that this was invisible on the surface of the intestine, but could be demonstrated as a film passing from coil to coil and completing the sac in which the pregnancy had developed.

“The importance of the case, in the present state of our knowledge, cannot be overestimated. It effectually disposes of much of the theory now current on the subject of advanced extrauterine gestation.”

After describing his own case in full he quotes from the reports of other operators in support of his theory. He says: “If the cases of abdominal pregnancy be considered in the light of the explanation here offered, it will be found that most, indeed nearly all, of the recorded cases in which no definite sac has been found admit of a similar interpretation.” Referring to the Jessop case, he quotes:

“The peritoneum, though natural on its surface, appeared thick and velvety in section. A few bands of unorganized lymph, of a very friable nature, lying upon the intestines were readily removed by sponging, and about an ounce of clear serum was found in the peritoneal cavity. The definite amount of serum here mentioned is decidedly suggestive of some unrecognized limiting sac.”

In Bandl's case Taylor refers to “a pocket formed by false membrane.” In Champneys' case “the thin layer immediately covering the fetus was a dull-white membrane. On the child's vertex a patch of sodden membrane was seen”; and then he says: “The similarity between this case and those I have myself reported is, I think, clear and unmistakable.”

Even more radical and sweeping are the assertions of Dr. Mordecai Price: "*The only way an extrauterine pregnancy can come to term is encapsulated in the amniotic sac* [italics mine]. The sac is a foreign body in the peritoneum and adheres to everything coming in contact with it. The adherent viscera protect as well as nourish the displaced ovum. The peritoneum would digest the fetus at any age not protected in some way from its influence. . . . The cases reported that seem to prove that the child can live in the peritoneal cavity were not carefully examined." Dr. Price refers to the Jessop case and explains it as one of rupture of the sac just before operation. He does not admit that the fetus is digestion-proof at any age—Tait and Taylor (Taylor's quotation on the point is from Tait) say, "its tissues having arrived at a period of development by that time which enabled them to resist the efforts of digestion." It must be admitted that the simple statement of the fact of finding a fetus free in the abdomen at the time of operation does not prove full development to have so occurred. With one or two exceptions, accurate descriptions admitting of a diagnosis of the time of rupture of the sac are wanting.

A case recorded by Neugebauer is one in point.* He says in reference to his case: "The sac must have ruptured early. The placenta was attached to the posterior bladder wall, the anterior uterine wall, and to the sulcus between the uterus and bladder. There was no trace of membranes, excepting an attachment between the abdominal wall and the upper edge of the placenta. There were also traces of membrane around the edges of the placenta. . . . The intestines were free from adhesions. . . . There were two teaspoonfuls of a yellow fluid resembling liquor amnii."

In the article describing this case Neugebauer selects from Harris' list of operations for the delivery of viable children several which, he says, may or may not have been similar to his own. Of the 6 cases 4 are described as being found free in the abdomen. In Olshausen's case the sac ruptured six days before operation, and in one case the sac ruptured four months before operation.

In 1896 Dr. Walter Wilke* operated for a case, expecting to sew the sac to the abdominal incision after delivery of the fetus. "What was my astonishment to find no trace of a sac," is his impressive comment. Wilke, in his interesting account of this case, argues, from the history of the patient,

that there were two ruptures. The primary tubal rupture, permitting the escape of the sac unruptured, was followed by rupture of the membranes two months before the operation; the date of the last rupture was fixed by the character of the pains and disturbance of the patient occurring at that time. So far as I am aware, Neugebauer has been the only one to attempt a refutation of the theories held by Tait, Taylor, and Price, which he does in defence of his own case, in answer to Dr. Price's article.⁷ He says that the life of the fetus after the rupture of the sac "depends, not upon the integrity of the sac, but rather upon the further nourishment of the fetus through the cord and placenta."

It is not the purpose of this paper to discuss the merits of the controversy, but rather to put on record a case bearing so directly on the subject as to have a particular value at this time. Even putting aside the possibility of the fetus going to term free in the abdomen, the operation during the viable period of an extrauterine pregnancy is not so common as to make it uninteresting. The subject of the operative treatment of advanced extrauterine pregnancy, the child being alive, is of interest, if only because of the many unsettled points in connection with it. Dunning⁸ favors the operation during the life of the child, basing his argument upon all cases for the years 1894, 1895, 1896. While the number is not large, it is interesting to note that the recoveries are 60 per cent, as against 57 per cent where the operation is delayed until after the death of the child.

The treatment the placenta shall receive in either case is another vexed question. Immediate removal is the ideal treatment, but great danger may be incurred, a slight detachment of the placenta sometimes resulting in frightful hemorrhage. The relation of the placenta to the source of its main blood supply, the extent of its attachments to the intestines, as well as the difficulties encountered through inflammatory adhesions, render the problem one possible of solution only for each individual case at the time of operation.

Mrs. D., age 35. Has never been sick. Menstruation has always been regular. Has two children, whose ages are 12 and 6 years. Has never miscarried, and both pregnancies and labors were normal. Has enjoyed good health since last confinement. In 1897 she suffered from backache for a few weeks. At that time the uterus was found retroverted; the pelvic organs were otherwise normal.

I saw the patient for present illness January 3, 1899, when she was suffering great pain in the lower abdomen. This began suddenly and grew rapidly to be almost unbearable. Last period occurred October 26. The pain was sharp and often intermitting. There was a dark, scanty flow, which had continued for several days. The facial expression was that of suffering, but not that of anguish. Pulse 70, full, regular; temperature normal. Pelvic examination: a mass low down in the hollow of the sacrum; the cervix, directed upward, was soft and somewhat patulous. These symptoms, together with the history of nausea and vomiting, led to the diagnosis of pregnancy in a retroverted uterus with threatened miscarriage.

It was necessary to use hypodermatics of morphine to quiet the pain. The patient remained in bed a few days, but was then up and about, doing her housework as usual. The flow continued for three weeks, remaining scanty and dark, but at no time contained either shreds or clots; of this the patient was positive.

January 26, thirteen weeks after the last regular menstruation, the patient was again seized at night with severe pain, the pulse as before remaining normal. The pain occurred at night several times during March, but during the day did not interfere materially with household duties. During March and April I saw the patient frequently and made several careful pelvic examinations. At one time I put her in the knee-chest posture and used considerable force in the effort to replace what still resembled the impacted uterus. Traction on the cervix did not communicate motion to the mass. At the fifth month the fetal movements were felt. The pain, which had heretofore occurred in severe paroxysms low down in the right pelvis, now became general; the mass in the pelvis increased in size, and the fetal head was plainly felt through the post-vaginal fornix. The cervix was more markedly displaced to the front, being crowded back of the pubes and pointing up.

At no time satisfied with my diagnosis, the progress of the case through the fifth and sixth months brought the conviction that I had to deal with an extrauterine pregnancy, and, as the physical condition remained good, I decided to watch and wait a positive indication for operative interference until near term.

About the eighth month her suffering was continuous; the motion of the child was extremely vigorous and painful. The fetal movements were unusual in that they seemed entirely unrestricted, and through the thin abdominal walls any part of

the fetus could be recognized by touch; an extremity was easily held between the fingers. The cervix was now well behind the pubes, and the sutures of the head could be plainly felt through the bulging posterior vaginal wall. The head filled the hollow of the sacrum and was immovable. The patient was removed to the hospital, and examination under chloroform gave the following: The cervix was pressed high up above the pubes; the posterior lip was elongated and led to a funnel-shaped cervical canal. A sound was introduced freely into the uterus, which from the lower lips of the cervix measured five inches. By aid of bimanual examination the uterus was easily located as lying above the pubes, crowded forward against the abdominal wall; the fetus was plainly not connected with the uterus. The placental site was undetermined. Celiotomy July 23, after the most painstaking preliminary preparation. The patient was anesthetized with ether. The incision, from just above pubes to umbilicus, in median line, was afterward extended to admit of the delivery of an eight and one-half pound boy. There was no amniotic fluid.

The fetus lay directly under the incision, the left hand and forearm alone being visible, the trunk and extremities completely swathed in intestines, entirely free from envelope of any kind.

The head was so firmly impacted in the bony pelvis that the right hand was required to pry it free from its closely fitting quarters. The baby was quickly delivered and handed to an assistant for proper care, the cord having been clamped and severed.

The uterus was examined, but presented no signs of pregnancy, being only slightly enlarged. The cord was traced down and back to the posterior base of the left broad ligament, where it was found to emerge from the placental mass. This mass was well impacted, but was free from attachments and was easily brought into view, much as a glistening ovarian tumor of the same size and situation would have been. This placental mass was found to spring from the upper border of the broad ligament, was covered with peritoneum, and plainly had its origin in the tube. It was attached to the broad ligament and to the left lateral upper posterior third of the uterus, with slight adhesions to the fundus. Examination of surrounding structures gave no evidence of past or present inflammation or adhesion. The removal of the mass presented no difficulties. While there was no pedicle and the base of attach-

ment was perhaps four or five inches in extent, the use of the continuous suture following the line of removal made the operation practically bloodless. Serous surfaces were united with continuous suture wherever possible.

The abdominal wall was extremely atrophied, aponeurosis and skin apparently alone remaining.

The patient was on the table two hours. From the hospital chart I take the following brief notes of the post-operative progress of the case for three days. When returned to bed after the operation the pulse was 88, full and strong. Patient awoke and suffered no nausea or vomiting; the pulse did not rise above 90 the first twenty-four hours.



FIG. 1.—The baby and placenta, showing the relative size of baby's head and placenta, and the deformities of the feet, hand, and head of the baby.

The beginning of the second twenty-four hours there was some belching. The temperature was 100° , pulse 110. A full dose of magnesia sulphate was administered and was followed by vomiting, apparently caused by the salts. Temperature $100\frac{1}{2}^{\circ}$, pulse 122.

During the night moderate tympanites developed. The vomiting continued at frequent intervals. The vomitus was a dark, coffee-colored fluid. At 3 A.M. a three-grain calomel powder was given and retained.

Beginning of third day, temperature $98\frac{1}{2}^{\circ}$, pulse 112. An enema brought a free expulsion of gas and was followed by a

drop in the pulse to 90. After a free movement of the bowels the same day, convalescence continued uninterrupted.

The breasts showed no enlargement. Secretion of milk was lacking.

Dating from the last regular menstruation, the operation was performed eight days before full term of two hundred and eighty days. The baby cried feebly and lived four hours. The



FIG. 2.—Placenta one-half natural size. The space shown between the letters A, B, C, D is raw surface and indicates the extent of attachment of placenta. A, B, C is a flap from the broad ligament. Within this flap was found a small part of the undilated tube.

The cord is seen to emerge from the cavity of the placenta. The origin of the cord is just within the cavity.

pressure of the bony and soft structures of the mother upon the unprotected babe resulted in the deformities common to the fetus of advanced extrauterine pregnancy. The head was compressed transversely from the left frontal toward the right occipital region. The face, particularly the nose and lips, was distorted. One foot exhibited marked talipes calcaneus, the other talipes varus. One hand was sharply extended laterally. The baby was otherwise well formed and a fine speci-

men of a well-developed full-term infant. There was a hardly noticeable quantity of vernix caseosa in the folds of the skin.

There are certain features of this case which I desire to emphasize as supporting my conclusions as to the probable time of tubal rupture and escape of the fetus from its membranes into the free abdominal cavity.

At just what time this happened must, of course, remain conjecture. I believe it was about the third month, either the ninth or thirteenth week. The pain which the patient suffered throughout gestation was extreme in character, but at no time were the usual accompaniments of rupture—rapid pulse, cold sweat, anxious countenance, and collapse—present. The two periods of greatest suffering were the nights of January 3 and 26—nine and thirteen weeks after the last regular menstruation. The primary rupture occurred on the first date, for it was from this time that the pains and suffering began. It is an interesting question if this rupture did not include the fetal envelope as well. From the character of the pain, however, this might have been at the thirteenth week. After that date there was no one seizure of pain which would have marked the accident.

If the size of the rupture in the tube has any relation to the size of the escaping fetus, the photograph of the placenta will clearly prove that the fetus was between two and three months. The cavity of the placenta and its opening did not exceed two inches in diameter. The occurrence of the pain and the size of the rupture plainly fix the date of the primary tubal rupture as the ninth week.

Was there a sac at all after the escape of the fetus from the tube? I believe there was not. Had a sac existed there must have been adhesions and evidence of some supporting membrane. Excepting the attachments of the placental mass, there was no trace of adhesions or adventitious membrane of any kind. It is inconceivable that a thin amniotic sac, springing from the edge of the placenta and with an origin no larger than a silver dollar, could long support an active fetus. In this connection also the location of the placenta, its opening resting against the lateral bony wall of the pelvis, in its impacted condition would not favor the expansion of a sac without material support.

The grounds supporting Price's assertion, as well as the arguments of Taylor, do not apply to my case. The adhesions necessary to the presence of a sac were wanting. The trans-

parent membrane connecting the coils of the intestine, of Taylor's case, were wanting. The "few bands of unorganized lymph lying upon the peritoneum" and the "definite amount of serum suggestive of some unrecognized limiting sac," in Jessop's case, were wanting. The pocket formed by false membranes, of Bandl's case, were wanting. "The dull white membrane immediately covering the fetus" and "the patch of thin, sodden membrane on the child's vertex," of Champneys' case, were wanting. Every possible indication pointing to the presence at any time during the pregnancy of a limiting membrane or sac outside of the placental mass was in this case absent.

My conclusion is that this was a case of free intraperitoneal pregnancy from not later than the third month.

Present at the operation were Drs. H. C. Aldrich and D. R. Matchan, of Minneapolis; Drs. W. S. Briggs, B. H. Ogden, L. E. Penny, Comstock, and J. L. Rothrock, of St. Paul. I am indebted to Drs. Briggs, Matchan, and Aldrich for valuable assistance.

50 GERMANIA LIFE BUILDING.

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ROUND-LIGAMENT VENTROSUSPENSION OF THE UTERUS:

A NEW METHOD.

BY

D. TOD GILLIAM, M D.,
Columbus, Ohio.

(With four illustrations.)

ON the evening of Saturday, November 18, 1899, I received a copy of *The Journal of the American Medical Association*, giving a description of Ferguson's method of suspending the uterus by the round ligaments. Thirty-six hours later I did

my first case, and it was during the performance of this operation that I formulated and in part carried into effect the technique described below.

To facilitate this operation I had Tiemann & Co. construct for me a forceps which in general outline resembled the Senn compression forceps, but with sharp end and edges so that it might be thrust through the tissues. This forceps is six inches in length, the blade being one and three-quarter inches long. For convenience of description I will call this the *perforating*

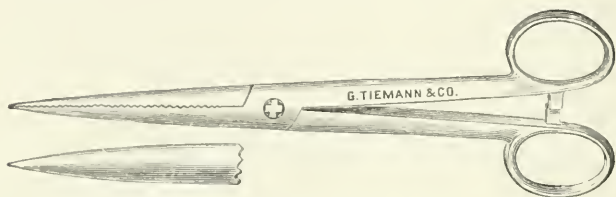


FIG. 1.—Perforating forceps.

forceps. I also had two other forceps constructed, which will be described further on.

The basic principle of this operation is that of invagination of the proximal portion of the round ligaments in the abdominal wall, as evolved by Ferguson. The successive steps of the operation modified by me are:

1. *A median abdominal section.* This section is from three



FIG. 2.—Button forceps.

to four inches long and at the usual site between the umbilicus and pubis.

2. *Break up adhesions and bring the fundus forward.*

3. *Seize the Fallopian tube and bring it to the opening.*

For this purpose I have had constructed two long, slender forceps, something after the style of the bullet forceps, but with blunt ends instead of sharp teeth, in order to avoid wounding the delicate tissues. These are called button forceps. Guided by the finger, one of the forceps is introduced through the abdominal incision, and the tube seized at its most convenient

point and drawn into the opening. While thus held the round ligament of the same side is seized about one and a half inches from its uterine extremity and lifted up.

4. *Carry a heavy silk thread under the ligament close to the forceps in such a manner as to include a little of the tissue of the broad ligament.* This may be most conveniently

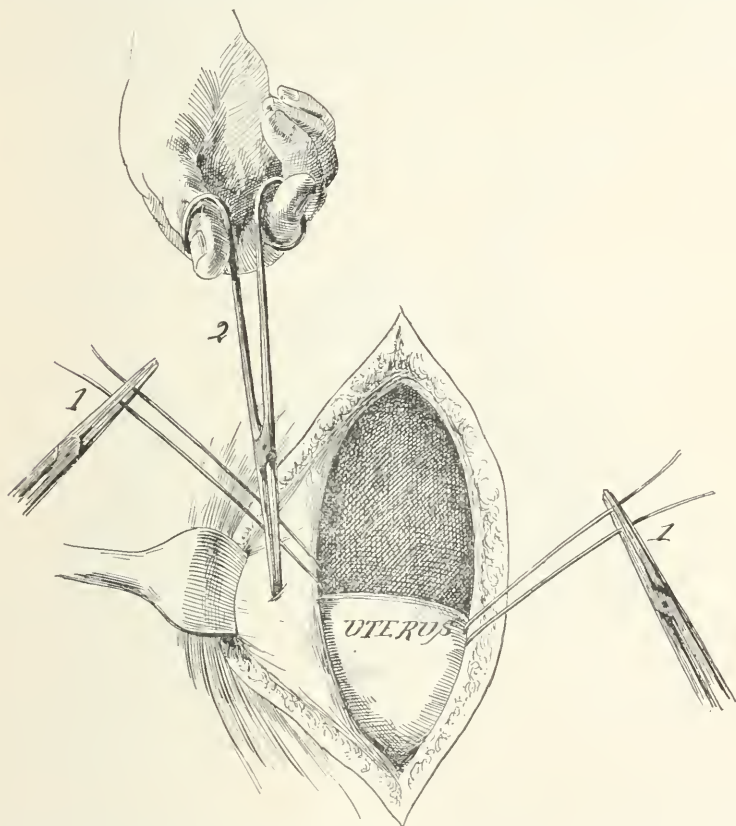


FIG. 3 —1. A thread has been thrown around the round ligament on either side, and the ends secured by clamp forceps.

2. The skin and fat is retracted and the perforating forceps applied to the surface of the rectus muscle, through which it is thrust into the cavity.

done with an aneurism needle or ligature carrier. This forms a loop under the ligament, which is not to be tied, but after withdrawing the needle the two ends of the thread are brought out of the abdomen and secured in the bite of a snap forceps.

5. *The forceps holding the tube and round ligament are now removed.*

6. *The other round ligament is secured in the same way, and the ends of the thread brought out of the abdomen and held in the bite of another clamp forceps.*

7. *Retract the skin and superficial fat on one side until an inch or more of the rectus muscle is exposed. For this purpose a retractor may be used, but, as the tissues glide easily over each other, I prefer to push them back with the thumb, with two fingers within the cavity and applied to the peritoneal surface. The object of this retraction is to expose a point*

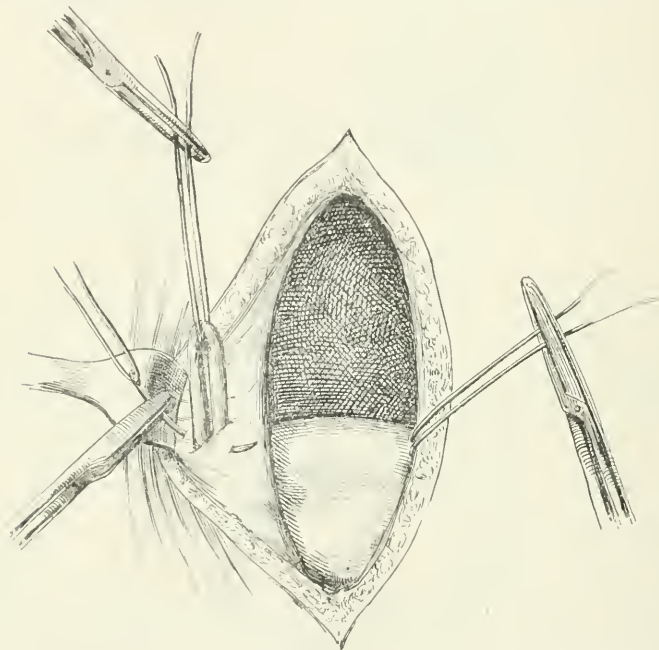


FIG. 4.—The perforating forceps is withdrawn, bringing after it the round ligament, through the base of which a suture is being passed.

through which the forceps may be thrust into the peritoneal cavity. This point should be one inch external to the margin of the wound and an inch and a half or two inches above the pubis.

8. *Thrust the perforating forceps through into the peritoneal cavity and seize the thread which holds the round ligament. The two fingers already within the cavity guard the instrument in its passage and place the thread within its jaws.*

9. *Remove the clamp forceps from the thread. These are lying on the surface of the abdomen.*

10. *Withdraw the perforating forceps. This brings with*

it the thread, and the thread in turn brings the ligament through the perforated wound in the abdominal wall.

11. *While the ligament is held taut, fasten it into the wound.* This is done by a few catgut sutures passed through its base and including the tissues on either side the entire thickness of the wall.

12. *The exposed free loop of the ligament is now spread out on either side of its point of emergence and tacked down with catgut so as to form a button or bar.* This is intended to prevent retraction.

13. *Treat the opposite side in the same manner.*

14. *Close the median abdominal incision.*

50 NORTH FOURTH STREET.

PRELIMINARY NOTE ON AN OPERATION FOR SUSPENSION OF THE UTERUS.

BY

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New York.

AN operation which I have now done in some twenty cases has proved practicable as far as the operative part is concerned. It remains to be seen what the results will be during and after pregnancy, and this note is published at this time in order to fix the responsibility for the operation.

The abdomen is opened in the middle line. A hook is inserted through the round ligament at a point midway between the uterus and the inner inguinal ring.

The round ligament is angulated by strong traction upon the hook. The peritoneum is stripped away from the ectad face of the angulated ligament, but remains attached at the base of the angle.

Two parts of the bared round ligament are approximated at the base of the angle with a suture of chromicized catgut. This throws two or more inches of the round ligament out of function. The bared face of the loop of ligament that is thrown out of function is re-covered with the flap of peritoneum that previously belonged to it.

The other round ligament is treated in the same way.

The operation forces the retroverted uterus to ride easily in

a normal position. It is freely movable. Enough round ligament remains for the normal function of round ligament.

In early operations I sometimes threw nearly three inches of round ligament out of function. In later experiments it was discovered that if only an inch of round ligament is thrown out of function the uterus often cannot again be placed in a position of retroversion. One soon learns by experience about the amount of shortening to be made in any such case.

58 WEST FIFTY-SIXTH STREET.

THE PERNICIOUS NAUSEA AND VOMITING OF PREGNANCY:
WITH THE REPORT OF A CASE.¹

BY

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AMONG the many complications of the pregnant condition none is more complex in its causation than pernicious nausea and vomiting. The many causes which have been assigned for this condition indicate the number of factors entering into the case and the difficulty in detecting that which is most influential. The following may serve as an illustration.

The patient, age 40, gave a good family history. When 2 years old she had abscess of the liver and at 15 a severe pneumonia. Menstruation began at 12, was regular but very painful. She had been married twelve years and had had four pregnancies. In each of these nausea had been pronounced.

The patient had borne three children, two of whom lived. In the third pregnancy nausea became so severe that the patient's life was despaired of, and at five months' gestation the uterus was emptied. At this time the patient suffered from contractures of the limbs and was in an exceedingly weak condition. She recovered from this, and three years afterward gave birth to a living child without much suffering. In the third pregnancy, which terminated disastrously, twin fetuses were removed from the womb.

When the patient was first seen she was found to be ema-

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, January 18, 1900.

ciated and weak, although not especially excited. Her last menstruation had been eight weeks previously. For a year before that time she had been irregular. She had recently had a considerable strain upon her strength, and had fainted with pain referred to the pelvis. There was no vaginal discharge, but constipation was present and the bladder was irritable. The patient was constantly nauseated.

On vaginal examination the pelvic floor was in good condition, the uterus sharply anteflexed, freely movable, and the cervix much enlarged and very dense. The pulse was normal and the tongue clean. On palpating the abdomen an indefinite area of tenderness was found over the region of the appendix.

The patient was first seen at some distance from the city, and was brought to Philadelphia as soon as possible by her husband. She was at once placed in bed under the care of an efficient nurse. Her vomiting slightly decreased and she retained a small quantity of albumen water. The urine was amber in color, acid in reaction, specific gravity 1030. A trace of albumin was present, there was no sugar, and the urea was 1.89 per cent. The examination of the blood showed the red cells to be 4,936,000, the white cells 14,500. The blood was pale and watery in appearance. The corpuscles stained unevenly, differed greatly in size, and poikilocytosis was present. A count of the white cells showed an increase in the polymorphous forms to 80 per cent.

The patient was at once nourished exclusively by the bowel, and remedies were used to procure sleep. The patient was anxious to prolong the pregnancy, and both she and her husband desired earnestly the birth of another child. Mentally she was extraordinarily calm and hopeful, and co-operated in every way in her treatment. For one week a thorough and patient effort was made to sustain the patient in every way and to avoid the interruption of pregnancy. Consultation was held with Dr. Edward L. Duer and the patient thoroughly examined. At the end of this time the patient was found to be distinctly worse. The urine was reddish-yellow in color, neutral in reaction, specific gravity 1020, albumin decidedly present, sugar absent, urea 0.64 of one per cent. A small quantity of coffee-ground material was detected in the patient's vomit. The patient and her husband were warned that pregnancy should not continue, and consented to its interruption. Through the courtesy of Dr. Keen a vacant

room in his private hospital was obtained and the patient was transferred as soon as possible.

For operation, oxygen and chloroform was most skilfully administered by Dr. William L. Taylor. The patient's condition was so grave that at my request Dr. Keen performed intravenous transfusion of saline fluid during the operation. I operated by rapidly dilating the womb by solid metal bougies and thoroughly curetting it. Dr. Duer very kindly assisted me.

When the interior of the uterus was examined no ovum could at first be found. Further search, however, revealed the ovum attached to the anterior wall of the uterus just above the cervix, the sharp anteflexion present making its detection difficult. When the sac of the embryo was opened twin embryos were found present. The uterus was thoroughly emptied and douched by the douche-curette and packed with iodoform gauze. Examination failed to reveal a considerable enlargement of the right Fallopian tube or appendix. The anesthetic was most successful in relaxing the womb and in its rapid and agreeable effect.

The patient began to recover immediately. When she awoke from the anesthetic she was entirely free from nausea. Her further convalescence was uninterrupted, and she has since reported in excellent health.

The twin embryos removed from this patient correspond to less than eight weeks of development, and fully coincide with the history given by the patient. They are extraordinary specimens in the early stage of twin pregnancy, and are exhibited herewith.

In accordance with my experience the salient features of this subject may be summarized as follows. In a considerable number of cases of the pernicious nausea of pregnancy the womb is sharply anteflexed and the cervix extraordinarily thickened. The pelvic organs are forced strongly downward and forward, and a contracted condition of the pelvic fascia and muscular tissue is present, which may be termed "pelvic tenesmus." In other cases the womb is retroflexed or retroverted. These patients are much relieved by raising the uterus as far as possible in the pelvis and by stretching the cervix. The latter is done at the risk of bringing on abortion, but is sometimes effective in stopping the nausea and in enabling the patient to go to term.

The salient feature in the symptoms of these cases is nausea and not vomiting. Many of the worst cases vomit but once or

twice in twenty-four hours, but are nauseated while awake. Coupled with this, and resulting from it, is the profound mental and physical depression from which these patients suffer.

Especially significant in the symptomatology of these cases is the obstinate, boring, burning pain beneath the sternum, and the discharge in the vomit or bowel movements of coffee-ground material, which is recognized as decomposed hemoglobin. I have found no adequate explanation for the substernal pain, although it has been noted in other patients, not pregnant, who suffer from pernicious anemia. Coffee-ground vomit has been observed repeatedly in nephritic patients and in those suffering from extensive degenerative disease.

In cases of pernicious nausea the patient is not invariably emaciated. In two fatal cases under my observation emaciation was not present, nor could any appreciable diminution in the bulk of the patient's body be observed.

Death comes to these patients through exhaustion, and the downward progress of the patient is marked by the persistence of the nausea, the occurrence of coffee-ground vomit, the rapid failure in the metabolism of the body, as shown by the lessened discharge of solids in the urine, and the occurrence of albuminuria. In order, then, to appreciate the gravity of a case, it must be viewed in the light of the degree of exhaustion present, the condition of anemia present as shown by an examination of the blood, the degree of excretion maintained by the patient, and the evidences that the blood is undergoing rapid disintegration as shown by coffee-ground discharges.

As regards treatment, I know of no narcotic or sedative which can absolutely control the distressing sense of nausea. If the patient can be fed, put at absolute rest, and her strength so recruited that her nausea gradually ceases, she can go on to recovery. The replacement of the uterus to a better position and the stretching of the pelvic and cervical tissues is an important aid.

Unless the patient can be promptly supported and made better by these means, in my experience, after careful consideration and consultation, the pregnancy must be ended,

REPORT OF A CASE OF NEPHRECTOMY FOR PYONEPHROSIS
DUE TO IMPACTION OF A STONE IN THE URETER:

WITH REMARKS ON THE IMPORTANCE OF THE EARLY DIAGNOSIS AND
TREATMENT OF RENAL CALCULI.¹

BY

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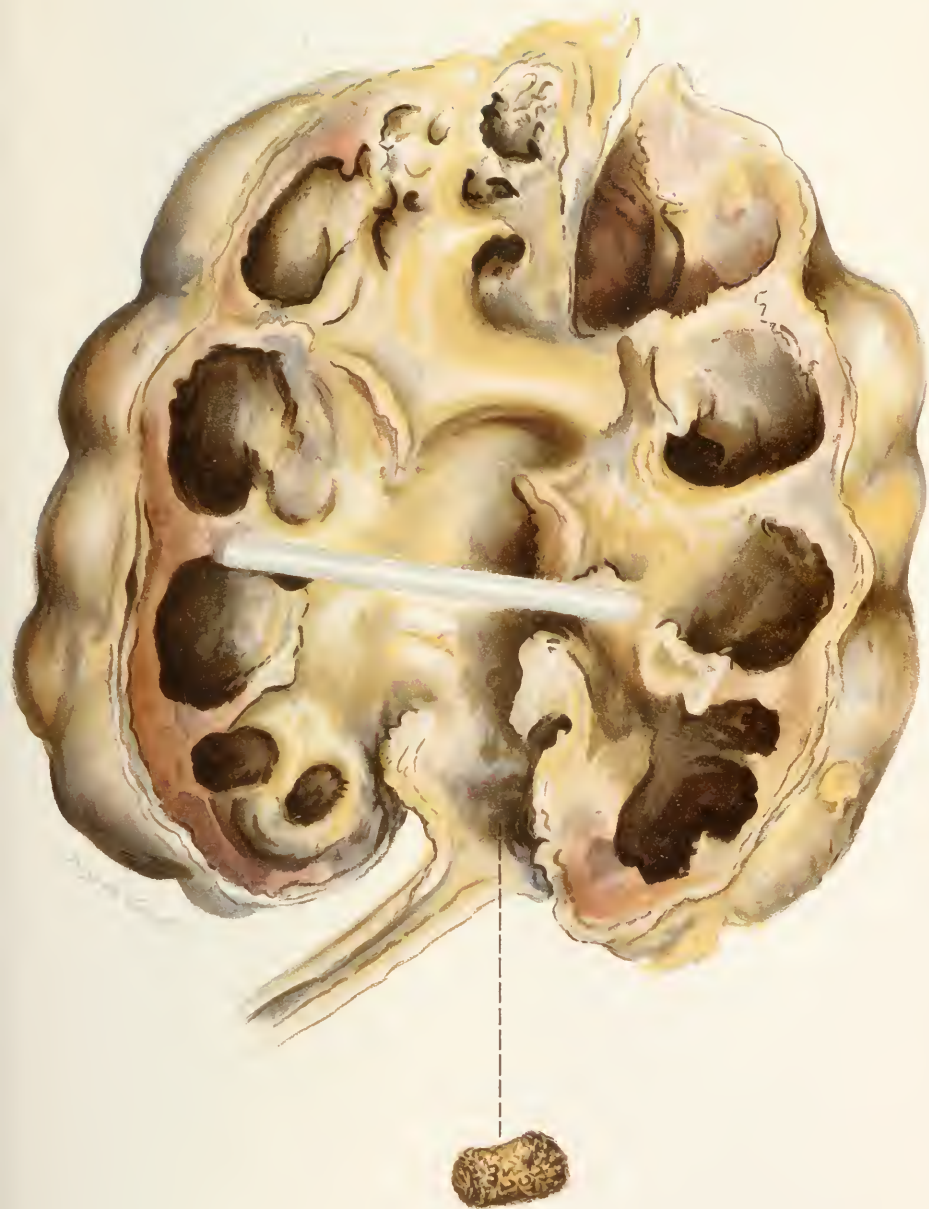
(With plate.)

THE following case is reported as a typical example of the bad results of temporizing when a stone in the kidney is seriously interfering with its functions or is serving as a source of irritation and focus of infection.

Mrs. W., age 42, primipara, was admitted to the Kensington Hospital for Women August 31, 1899. She gave the following history: Her general health has been poor for a number of years and has been gradually becoming worse for the past three years, until at the present time she is quite an invalid. She is the mother of one child, now grown, and has not suffered from disease of the pelvic organs. In 1895 she had a sharp attack of renal colic, but passed no stone, and none has passed since that date. She has been continuously under treatment for supposed cystitis from 1895 until the present time. Her chief complaint has been an irritable bladder, with some discomfort and sense of weight in the left renal region. Her family history does not throw much light upon the case. Her mother's family was gouty, but no member of the family has suffered from gravel or from renal calculi.

Examination showed her to be well nourished, but sallow. The tongue was coated, but otherwise the general examination showed nothing of interest. A tumor of considerable size was present in the left half of the abdomen, apparently a much-enlarged kidney. Examinations of the urine showed constantly the presence of large quantities of pus. The urine was

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, January 18, 1900.



KIDNEY DESTROYED FROM STONE BLOCKING URETER.—Noble.

generally alkaline, with a specific gravity of 1016. On September 4 both ureters were catheterized, and the catheters were allowed to remain one hour and a half, with the following result: from the right kidney were obtained six and a half drachms of urine having a reddish-yellow color, acid reaction, and containing some albumin and considerable blood, also quite numerous hyaline and coarse granular casts; from the left kidney were obtained two and a half drachms of pale-yellow, cloudy fluid, of which pus composed the entire sediment. This urine was alkaline and contained much albumin.

During the first ten days she was under observation the amount of urine increased from twenty ounces to fifty ounces per day. The evening temperature during this period was usually 100° F.; once it reached 100.8° F. The pulse was 100.

A careful consideration of the facts developed by the examination of the case forced me to the conclusion that the left kidney was destroyed by suppuration, and owing to the history of renal colic it was thought likely that renal stone was the cause of the trouble. It was equally evident that the right kidney was not perfectly normal, but it was doing practically all of the work in the elimination of urine. As the patient was septic as a result of the presence of the left kidney, nephrectomy was advised. Previous experience in somewhat similar cases had shown that when the system was relieved of the presence of one suppurating kidney, the other, even though not perfectly normal, did its work better. It was hoped that the right kidney would recover itself after operation.

Nephrectomy was performed through a lumbar incision September 11, and a very large, suppurating kidney was removed intact. The kidney measured 6 by 3 by 3½ inches. Mrs. W. made a very smooth recovery. Her temperature was normal after the third day, but rose to 103° F. on the second day, largely through nervous influences. The wound healed by primary union.

After operation the quantity of urine excreted in twenty-four hours increased from ten ounces to forty ounces per day. The pus disappeared from the urine, which became entirely normal and is so at the present time, four months after operation.

On section of the kidney it was found to be riddled with abscesses and the kidney substance practically entirely destroyed, the kidney having become the sac of an immense abscess.

The source of the trouble was found to be a calculus, about half an inch in length, impacted in the upper end of the ureter.

Dr. W. Wayne Babcock, Jr., pathologist to the hospital, reports upon the specimen as follows:

"Specimen of kidney with upper portion of ureter attached, hardened in formaldehyde.—The kidney shows a slightly lobulated contour and measures 5 by $2\frac{1}{2}$ by $2\frac{5}{8}$ inches. The capsule is adherent, and when stripped off leaves a rough, granular surface.

"Upon opening the kidney the interior is found to be occupied by a large number of rounded cavities from one-half to one inch or more in diameter. The cavities communicate by narrowed openings with a dilated renal pelvis. The entire inner surface is lined by a soft tissue having a very granular surface. Externally the cavities are bounded by a narrow rind of kidney substance measuring from one-eighth to one-half inch in thickness. These cavities of the kidney correspond to the surface convolutions of the kidney and are separated from each other by rather narrow walls of tissue. The walls of the pelvis are much thickened, and its enlarged cavity merges imperceptibly into the dilated orifice of the ureter. At a point opposite the lower half-inch of the kidney the ureter abruptly assumes its normal size.

"Sections were taken from some of the thicker portions of the outer walls of the renal cavities, were stained and examined microscopically, and show obliteration of many of the glomerules by a fibroid process, dilatation of many of the urinary tubules, and a marked putrefactive and inflammatory process in the interstitial tissue. The convoluted tubules have lost their lining epithelium in places, or show the epithelium in varying stages of parenchymatous degeneration and destruction. The interstitial tissue is much increased in amount, has apparently crowded many of the tubules out of existence, and is filled with formative and leucocytic cells. There are many areas of round-cell infiltration, indicative of forming abscesses. In deeper portions of the sections the evidences of kidney structure are largely obliterated and the picture resembles that of granulation tissue.

"The stone, which was found near the entrance of the ureter, is a flattened ovoid measuring $\frac{1}{2}$ by $\frac{3}{8}$ by $\frac{1}{4}$ inches and weighing about 11 grains. Its surface is irregular and of a mottled grayish or yellowish-brown color. It consists of a brittle, thick, and friable outer shell enclosing a firmer, irreg-

ular central portion which has a deeper, more translucent color and a firmer, more compact structure than that of the outer layer.

“The stone was composed largely of oxalate of lime.”

The most valuable practical deduction to be drawn from this case is the necessity for the early employment of modern means of investigating stone in the kidney. Had a presumptive diagnosis been made three years earlier, by nephrotomy the stone could have been removed before the kidney was destroyed by suppuration. Mrs. W. had been in the hands of several intelligent physicians, two of them professors in our medical schools, who had treated her for lithiasis, and who had failed to recognize the importance of careful instrumental examination. I have reported this case in the hope that it may stimulate interest in careful examination of the urinary organs by cystoscopy and catheterization of the ureters and at times by the Röntgen ray in all cases in which pus or blood is persistent in the urine.

1509 LOCUST STREET.

SOME NOTES ON THE CARE OF THE INTESTINE DURING AND AFTER ABDOMINAL SECTION.¹

BY

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AFTER the high standard set for our papers at a recent meeting, I tremble to come before you with what I must at the very outset tell you has no claim to originality; but if I can succeed in starting a discussion on this subject I will have succeeded in my main object—namely, to find out how the Fellows of this Society deal with this subject.

I may be allowed, perhaps, to make one or two points in the care of the intestine prior to the section. It has been my custom for a long time, in all cases in which ether is to be given, to administer, fifteen minutes previously, morphine and atropine. The dose is usually from one-sixth to one-fourth of a grain of the former and from one-one-hundred-and-twentieth to one-one-hundred-and-fiftieth of a grain of the latter. Who

¹ Read before the Woman's Hospital Society, January 16, 1900.

was the originator of this procedure I am totally unaware; certainly it is an old but very valuable aid to ether anesthesia. Its value is, first, to lessen the amount of ether required for complete anesthesia, and, secondly, the almost complete freedom from mucus in the throat and bronchial tubes that it secures during its administration. I am also confident that nausea and vomiting following the administration of ether is very much lessened by it, on account, first, of the smaller amount of ether required, and, second, the effect of the drugs *per se*.

Having experienced, as we all have, the greatest difficulty in securing an action from the bowels in cases of local or general peritonitis, and having lost cases from this cause alone, entirely independent of any inflammatory condition, it occurred to me, about two and a half years ago, that it would be a good thing if we could anticipate intestinal paralysis by the administration of a laxative or cathartic prior to the anesthesia. With this point in view I determined that in the next case that came under my care where I had reason to believe we would have a considerable extent of raw surface left in the abdomen which could not be covered with peritoneum, I should try the administration of Epsom salts just prior to the administration of the ether. The first case that came under observation was one of a general peritonitis—I scarcely dare say septic peritonitis; however, I believe that it was such a case. When she entered the hospital she was practically moribund; cold to the knees and elbows; face and cheeks clammy; an imperceptible pulse at the wrist and a subnormal temperature; and a black vomit escaping from the mouth and nostrils, and she was without sufficient life to make an effort to clear the throat. The abdomen was distended, and there was every reason to believe that death would ensue within a few hours. Under vigorous stimulation reaction occurred, and the following day an abdominal section was done, one ounce of Epsom salts having been administered prior to the giving of ether. The abdomen was found full of thin, serous pus filled with a large amount of flocculent material. No point of infection could be found. The appendix, tubes, and ovaries were perfectly normal and no intestinal perforations could be found. Nothing whatever was removed from the abdomen except the pus. The abdomen was washed out with large quantities of normal salt solution and closed without drainage, six pints of normal salt solution being allowed to remain in the abdomen. Except for a slight bronchial pneumonia, the patient made

an uninterrupted recovery, and one year later gave birth to a child at full term after a normal labor.

The point which I wish to bring out in this case is the fact that large and copious movements occurred from the bowels within four hours after the operation, and to this and the effect of the saline left within the abdomen I attribute the patient's recovery. I should also add that this treatment was supplemented by rectal enemas of one pint of salt solution every two hours for the first two days.

Encouraged by this result, I at that time commenced the routine administration of Epsom salts in all cases where I had reason to fear subsequent trouble with the intestine. The time of administration has always been just prior to the beginning of the anesthetic, not even a few minutes before, and they have always been given dissolved in as small an amount of hot water as possible. The observation has been universal in all these cases that the kidneys acted more freely and earlier than without their administration. The vomiting after ether has not been increased. The early passage of gas has also been noted, almost invariably within the first twelve hours.

It will be acknowledged by all that the less the intestines are manipulated the smoother will be the recovery of our patients. To avoid this there are several points which I think will bear discussion. It is the custom at the present time to disregard the length of the abdominal incision. To my mind this is a great mistake. Whereas I would not advocate working through an incision the length of which in any way hampered the operator, I would encourage making as small an incision as is possible. How often have we seen the abdomen cut from symphysis to umbilicus, or even further, and then the cavity filled up with yards upon yards of iodoform or other gauze to keep the intestines within the cavity, leaving the operator no more room than he would have had with a three and a half inch incision without the packing! It is my practice to use as little gauze within the abdomen as possible, believing, as I do, that by gauze packed against the intestines and allowed to remain for from half an hour to an hour irreparable injury may be done to their peritoneal covering, so increasing the chances of infection; for it will scarcely be argued that any abdominal section was ever done without more or less infection, it being in any particular case simply a matter of dosage, and if the peritoneal covering of the intestine is not injured it will take care of a larger dose than where it is injured.

We frequently hear the remark that the abscess cavity was thoroughly walled off. I do not believe that with any amount of gauze packing a water-tight or pus-tight cavity can be made in the abdominal cavity. We may to a certain extent keep the intestines out of the way by gauze packing, but I do not believe that the pus can be prevented from spreading to any practical extent by its use. For my part, I have given up any attempt at walling off uninfected parts of the abdomen with gauze, my feeling being that the amount of manipulation and irritation from the gauze does more harm than good. I rarely use more than one piece of gauze, and that to keep the intestines out of harm's way from manipulation. By this means—that is, not allowing but one piece of gauze to enter the abdomen at once, and when a second is required, the first one being always removed—there is no possibility of either gauze or sponges being sewed up in the abdomen. Of course, as far as possible, all raw surfaces will be covered with peritoneum.

The next important point in the care of the intestine is the cleansing of the abdominal cavity. So far as my observation goes in witnessing operations in different hospitals in this city, the favorite method is to pour in large quantities of salt solution or other sterile fluid from a pitcher held at various heights above the abdomen. This is not the best way of cleansing the abdominal cavity, as it will be impossible by this method to wash out clots and other infected material situated deep down in the pelvis and among the coils of intestine. The better and only satisfactory and thorough way to wash out the pelvic and abdominal cavities is by means of a large funnel with rubber tube attached, the tube to be passed completely to the bottom of the pelvis before allowing the water to run, thus causing an upward current instead of one in the opposite direction, and so floating out all débris from the bottom of the cavity. This should be done thoroughly, and the tube should be carried around among the intestines at the bottom of the pelvis, in the lower abdomen, in front of the bladder, and in fact in every part of the abdomen that can be reached, and in that way the cleansing can be rendered almost perfect. Having been satisfied that the washing is complete, the funnel should be lowered and any residual water siphoned off. This tube can be left in place at the bottom of the pelvis and the abdomen partially closed around it. Before final closing, the abdomen can then be filled with fresh salt solution, the patient being slightly in the Trendelenburg position and thereby floating the intestines out of the pelvis. This will also be an index as to the perfect

control of hemorrhage, by means of separating the wound around the tube by a pair of forceps or other instrument and allowing some of the water to escape. Various antiseptic solutions have been used to wash out the abdomen, as Thiersch's, weak solutions of bichloride of mercury, peroxide of hydrogen, and kindred solutions. These are no doubt valuable in certain cases, but I have never had occasion to employ them. The amount of salt water to be left in the abdomen will, of course, vary in different cases, and has very beneficial effects otherwise than keeping the intestines out of the pelvis and preventing adhesions.

Every case of abdominal section, before being removed from the table, receives an enema consisting of one quart of normal salt solution, one ounce of whiskey, and twelve minims of Squibb's compound solution of opium. This injection, minus the whiskey and opium, in half the amount, is repeated every two to three hours until the patient is able to take fluid by the mouth. To facilitate the keeping of the intestines out of the pelvis, Clark's position is employed in all cases of abdominal section. Taking of fluids by mouth is encouraged as early as possible, instead of being interdicted for twenty-four hours.

The most important point, perhaps, for consideration is the length of time after an abdominal section that the bowels should be allowed to remain unmoved. When I commenced to do abdominal surgery I was taught to leave them undisturbed until from the third to the fifth day. By some inquiry among my friends I find that it is still the custom with many not to give a laxative until the third day. The following-out of this method has, I believe, directly increased my mortality. I now, in practically all my abdominal cases, secure a free action of the bowels at the end of the first twenty-four hours. This I accomplish by the administration of the Epsom salts prior to anesthesia, the saline enemas, and the administration of from ten to fifteen grains of calomel in a capsule twelve hours after the operation. I am thoroughly opposed to giving calomel in these cases either in triturates or in small powders, for the reason that I believe it is more apt to upset the stomach when given in that form. The calomel is followed, about six hours later, by teaspoonful doses of Epsom salts dissolved in hot water, and this is given regardless of nausea or vomiting. Many times have I seen a dose of hot salts retained when the stomach had been rejecting teaspoonful doses of champagne.

At the first evidence of distension of the large intestine, even though it be but a few hours after operation, high enemas are

commenced and are not discontinued until gaseous or fecal movements have been secured. By this method I am sure that I have saved a class of severe pus cases that I used to lose. By severe cases I mean those cases of pelvic abscess where large areas of intestines are involved; where the tubes and ovaries, filled with pus, are surrounded by inflammatory deposit, intestines, omentum, and other neighboring viscera, requiring the most extensive and difficult dissection for a complete operation; and where enucleation without rupture is impossible, and where extensive raw surfaces exist that can by no care be covered.

Attention has also been called to the early movement of the bowels by Henry T. Byford, of Chicago. In a paper read before the Illinois State Medical Society, May 18, 1898, and published in *THE AMERICAN JOURNAL OF OBSTETRICS*, vol. xxxviii., p. 18, he recommends the administration of some mild but efficient cathartic, such as two teaspoonfuls of fluid extract of cascara sagrada, given two hours before the time set for the operation; and as soon as the patient awakes from the anesthetic a drachm of sulphate of magnesia in an ounce of water, or an equivalent dose of some mineral water, is given every hour, and repeated immediately whenever vomited. About six hours after the operation is completed he gives a stimulating enema, and this he repeats every two or three hours until flatus passes freely between enemas. He wisely lays great stress on this point: that we should not feel satisfied with the passing of gas at the time of the discharge of the enema, but that we should only be satisfied when gas passes independently of the enema; for in this way alone can we be sure that we have more than the return of the air injected with the enema.

I should rather be inclined not to make any hard-and-fast rule as to the time to begin the stimulating enemas, but rather be guided by an attempted movement of the bowels or by collection of gas in the large intestine.

One of the most valuable enemas for this purpose is that suggested by T. J. Watkins, and which consists of two ounces of Epsom salts, one ounce of glycerin, and three ounces of water. I have had this produce results when everything else had failed. It should be given through a long tube, well above the sigmoid flexure. In severe cases, when once the bowels have acted, a movement should be secured every twenty-four hours.

THE CLINICAL SIGNIFICANCE OF DEVELOPMENTAL DUPLICATIONS OF THE UTERUS AND VAGINA.¹

BY

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(With twelve illustrations.)

EARLY in the development of the embryos of all the vertebrates higher than the jawless fishes, a pair of thread-like tubes appear by the side of the primitive kidney or Wolffian ducts. It is not positively known just how these tubes originate, but it is probable that they arise from the primitive kidney duct by fission. This second pair are called, from their discoverer, the ducts of Müller, and are of great interest and importance to our present consideration, as from them arise, in the females of all the mammalia, the oviducts, the uterus, and the vagina. In the male the Wolffian ducts become the sperm ducts, while in the female their remains form the vestigial canals of Gärtner and the parovarium. Conversely, in the male mammal, vestiges of the Müllerian ducts are sometimes found as the canals of Rathke, and in man as the uterus masculinus and verumontanum. The upper portion of the Müllerian tubes forms the oviducts, the middle and lower a fusiform muscular pouch, the uterus and, in the higher mammals, the vagina. In the lowest order of living mammals, the monotremes, the two uteri are perfectly distinct and open on either side of the bladder into the cloaca. In marsupials the Müllerian ducts are connected and we have a duplicated vagina formed, which in the more highly specialized placental animals gradually coalesces from below upward. In certain of the rodents two separate uteri open into a single vagina; in others and in the carnivora, cetacea, and ungulata, while the cervix has become single, the cornua are still separate. In the lemurs the horns become very short, while in the apes and in man the union is complete and we find the familiar pear-shaped uterus.

In the human female the normally complete development or fusion of these ducts is occasionally arrested, and we may then

¹Read before the New York Obstetrical Society, February 13, 1900.

have a reversion to certain of the more primitive types, or a mal-development which may lead to serious interference with the genital functions and welfare of the individual. These malformations, while comparatively rare, occur frequently enough to make it necessary for us to always have their possibility in mind, and the object of this paper is to draw attention to some of their clinical manifestations.

Probably the most common mark of an imperfect fusion of the Müllerian ducts is a hymeneal opening divided into two by a perpendicular band of tissue in the median line and extending up as a slight sickle-shaped suggestion of a septum in the vagina. This condition, with more or less of a vaginal septum, we have probably all seen. Next in frequency comes a more complete vaginal septum; then a partition extending partly or entirely through the cavity of the uterus, attended by a broadening of the fundus and by the more and more complete separation of the cornua until we reach the extreme of two entirely separate uteri and vaginae. With all the more marked of these deformities one side of the genital canal is apt to be less developed than the other, and there is always the possibility of an atresia at some point in the less developed side which may produce the various accidents of retention in the tube, uterus, and vagina, all of which conditions are exemplified in certain of the cases quoted below. The presence of these malformations, except where the genital canal is completely occluded at some point, does not seem to materially lessen the chance for impregnation, and delivery usually occurs without special danger or difficulty, except when the fetus is held in the rudimentary horn of a markedly double uterus. In this instance we may have the danger of rupture of the uterine wall, no dilatation of the imperfectly developed cervical canal, or powerless labor from want of contractile force in the uterus itself, either of which conditions may necessitate surgical interference.

Out of a number of cases showing in a greater or less degree the malformations under discussion, I have selected four which seem to me to possess enough of value and interest to make them worthy of presentation to your Society.

CASE I. *Pregnancy in Both Cavities of a Bilocular Uterus; Abortion.*—This case was seen by me shortly after graduation. Mrs. X., mother of several children and about three months pregnant, was examined by a prominent specialist at his office because of uterine cramps and bleeding,

He found an ovum protruding from the dilated os, which he removed, and packed the empty uterine cavity with gauze to control a rather free bleeding. He asked me to see the case the next day and remove the gauze, stating that he had removed the entire ovum, but that the uterus was much larger than it should be, probably from the presence of a soft myoma. On calling the next day I was surprised to find the woman having quite severe pains with some hemorrhage, and on removing the gauze an ovum presented itself. Rather surprised by this unexpected event, I removed the ovum with the finger and the curette, and found by digital examination what seemed a hole, the diameter of a finger, in the right side of the cervical canal. A sound passed into this showed that the patient had a septum dividing her uterus into two cavities.

CASE II. *Pregnancy in the Right Cavity of a Bilocular Uterus; Abortion.*—Mrs. B. S., German, stout, and a multipara, consulted me in June, 1890, for the relief of bleeding and uterine pains, and stated that she thought she was pregnant and aborting. Examination disclosed a uterus enlarged and soft, as if from a pregnancy of eight or ten weeks. The cervix was soft and patulous, and there was a slight bloody discharge. I decided that the uterus should be cleaned out, but, on passing in a small curette and ovum forceps, found only an empty cavity. Somewhat puzzled, I packed this cavity with a strip of sterile iodoform gauze and sent the patient home. Her pains continued, and the next day I examined her under anesthesia and found an ovum protruding through an apparent hole in the right upper part of the cervical canal. This ovum was removed with some difficulty, and her pains and hemorrhage ceased.

Both of these cases were of pregnancy in the more rudimentary horns of bilocular uteri, and are interesting because of the diagnostic difficulties they presented and also as suggesting a possible explanation of certain reported cases of superfetation.

CASE III. *Double Uterus, Double Vagina, Retrohymeneal Atresia, Bilateral Hematometra and Hematocolpos.*—E. O., a somewhat anemic, sallow, slightly built girl of 14½ years, came to my clinic at the Polyclinic on November 3, 1899, complaining of pain in the rectum and lower abdomen. She had never menstruated. The pain had begun as a feeling of distension about the lower pelvis, which had been felt at intervals for several months. Five weeks before she had had

severe pain, referred to the rectum, which had lasted for over two weeks and then gradually disappeared. She then had no pain for a week and a half, when it began again suddenly, became more severe, and was felt over the whole of the lower abdomen. The interval from the beginning of one attack to the other was nearly four weeks. Besides the pains the girl had suffered for several months from dizziness and general malaise.

She was at once anesthetized with nitrous oxide gas and examined. Her general configuration was that of a boy and the arms and legs were unusually hairy. The breasts were small but feminine. The lower abdomen was somewhat distended by a solid mass whose upper border was flat rather than rounded. The percussion note over the tumor was flat. On vaginal examination it was seen that there was a hymen with a small opening on either side of a central perpendicular septum. Behind the hymen and closely applied to it was a thick layer of tissue which occluded the vaginal openings. It was noticed that there was a prominent fluctuating area extending from the centre laterally well under the labium majus on either side. These conditions made it fairly certain that we had to deal with a vagina and uterus distended with retained menstrual blood and with more or less of a vaginal septum. A crucial incision was made through the distended hymeneal membrane on either side, the flaps removed, and the vaginal mucosa and hymeneal edges united with catgut sutures. Over a quart of reddish-brown fluid like thick, smooth chocolate was evacuated at once. This fluid continued to drain away for the following twelve hours, and there was a slight pinkish flow for a week. Digital examination showed that there were two apparently distinct uteri, both widely dilated, and two vaginal canals separated by a thick, fleshy septum. After this the vagina was irrigated and the patient put to bed. There was but little reaction, only moderate cramp-like pains for about twenty-four hours, and a rise of temperature to $99\frac{1}{2}^{\circ}$ F. for several days. Treatment consisted only in irrigation four times daily with hot normal salt solution, and the administration of moderate doses of strychnia and ergot to hasten the somewhat tardy contraction of the over-distended uteri.

Examination two months later showed that the vaginæ had contracted to half of their previous diameter. The uterine horns were small but distinct, the cervixes small and united to each other by a transverse band at the vagino-cervical junc-

tion. The girl had menstruated twice, having no pain and losing a normal amount of blood. Her general condition was much improved.

A double atresia with double vagina and double uterus like the above is extremely rare, and I have been able to find only one other recorded case, that reported by Neudörfer in an inaugural dissertation at Tübingen in 1873.

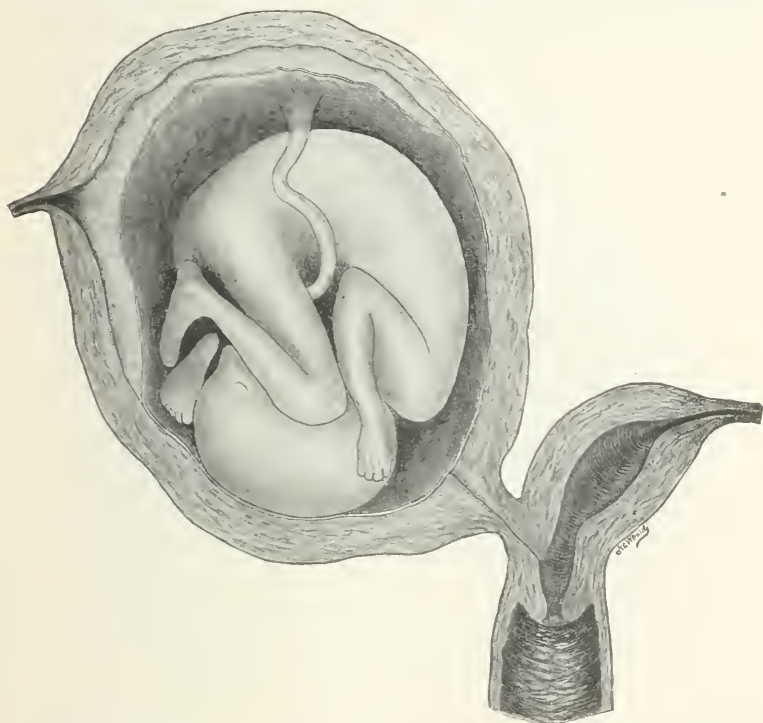


FIG. 1.—Section through both horns in author's case of pregnancy in the rudimentary horn of a bicornate uterus, showing location of placenta, position of fetus, and relative thickness of pedicle and walls of pregnant and non-pregnant horns. In the specimen itself the cervical canal was only the size of a small bristle and could not be seen macroscopically.

CASE IV. *Pregnancy in the Right Horn of a Completely Bicornate Uterus; Supravaginal Hysterectomy of the Pregnant Side.*—Mrs. C. I., a well-built Italian woman, married at 20, now 28 years of age, came into my service at the New York Polyclinic March 17, 1899. She had menstruated regularly since the age of 15, the flow coming on every four weeks, lasting for three or four days, being moderate in quantity and not accompanied by any unusual pain. Four years

after marriage her first child was born. Two other pregnancies succeeded this in rapid succession, the youngest child being now 2 years of age. Her labors were easy and, so far as she knows, normal. She had last menstruated in the early part of September, 1898, and now supposed herself to be pregnant about six months. She came to the clinic because of unusual cramp-like pains in the right side of her pelvis. A little questioning elicited the fact that she had had slight bleeding from the vagina at irregular intervals for the preceding three months. She had felt the movements of the child up to a week before coming to the clinic. Since that time she had felt no movement, but the cramp-like pains had been more



FIG. 2.—Posterior view of pregnant horn retracted after being incised along its inner border, showing membranes intact over fetus.

severe and there had been an intermittent discharge of blood from the vagina. She was a well-developed, fairly well-nourished woman, with no abnormality outside of her pelvis. The breasts were of fair size and contained milk. The abdomen was distended by what was apparently a five and a half months' pregnancy. Fetal parts could be felt, but no movement was detected and the fetal heart could not be heard. The pelvic floor was in good condition, the vagina capacious. The cervix presented a large laceration and was much less soft than was expected from the calculated time of the gestation. A careful palpation determined that the body of the uterus, slightly enlarged, lay to the left side and in front of the gestation sac. The appendages from the left side of the uterus

could be indistinctly palpated, but on searching what would normally be the region of the right cornu it was found that there was a deep sulcus between it and the pregnancy. This sulcus extended nearly down to the vaginal junction, where a pedicle, not over three-fourths of an inch in thickness and an inch broad, branched off from the uterus and could be palpated for an inch or more until it expanded into the pregnant mass. The recognition of this deep sulcus dividing the tumor from the



FIG. 3.—Microscopic section through the apparently imperforate pedicle of the pregnant horn, showing the minute cervical canal with its plicated walls lined with columnar epithelia. $\times 200$ diameters.

uterus made the diagnosis clear, and it was evident that we had a pregnancy in the less well-developed horn of a uterus bicornis unicollis. The sound showed the depth of the unimpregnated horn to be about three and a half inches, and no opening into the right uterus could be found. Believing it impossible that the woman could be delivered safely through the narrow pedicle, I thought it best to remove the right uterus by abdominal section. The diagnosis and the indication for operative interference were strongly doubted by several medical men who

were present, but the patient was admitted to the hospital, and three days later I removed the right uterus and confirmed both the diagnosis and the indication.

The tumor was exposed by a median incision, lifted out of the abdomen, the tissues of the right broad ligament tied off with kangaroo tendon, the slender cervical pedicle ligated and divided, the small stump covered over with peritoneum, and the abdomen closed. The succulence and softness of the tissues made the whole procedure very easy. The left uterus, ovary, and tube were normal and were not disturbed. Convalescence was rapid and absolutely uneventful. The horn removed was a rounded, ovoid mass $5\frac{1}{2}$ inches in diameter and 7 inches in length.

An examination of the specimen shows a thick-walled, muscular uterus with an ovary and tube attached to its right upper portion and a very slender, apparently imperforate pedicle connecting it with the cervix of the left horn. This uterus contained a small male fetus of five and a half months' development, with normal placenta and cord and nine and a half ounces of liquor amnii. As no cervical canal could be seen, a section was cut from the cervical pedicle, stained, and examined under the microscope. After some searching the cervical canal was found, it having a diameter only equal to that of a large bristle, and being distinguished from a lymph space or blood vessel by a lining of columnar epithelium and by the plication of its walls (Fig. 3).

A review of the literature of the past decade shows many reported cases of the anomalies we are considering, but many are described so loosely that the exact extent of the deformity is left in doubt.

The appended cases have been divided into four categories: (1) Cases of double uterus or vagina without complications; (2) cases of retention accidents; (3) cases of pregnancy delivered through the natural passages; (4) cases of pregnancy delivered by abdominal section. In abstracting these cases particular attention has been given to any points of clinical interest, and, so far as possible, the following definitions have been adhered to. *Uterus Septus* means a uterine body with a fundus of normal shape or somewhat broadened, but with an antero-posterior septum dividing its cavity into two; this uterus usually has one cervical opening, but may have two

(Fig. 8). *Uterus Arcuatus* has the middle of the fundus depressed and more or less of a septum (Fig. 5). In *Uterus Bicornis* the two horns are more or less perfectly separated, but are joined to one cervix (Fig. 6). In *Uterus Duplex* the two horns are completely separated, and there are two separate cervixes, united at the vaginal junction only by a band of connective tissue (Fig. 7). In *Uterus Didelphys* the separation is complete: this last form is extremely rare.

CASES OF DOUBLE UTERUS AND DOUBLE VAGINA WITHOUT COMPLICATIONS.

5. Tannen, A. *Uterus Duplex*.—Mrs. R., age 26, married two years; menstruated for the first time in her twentieth

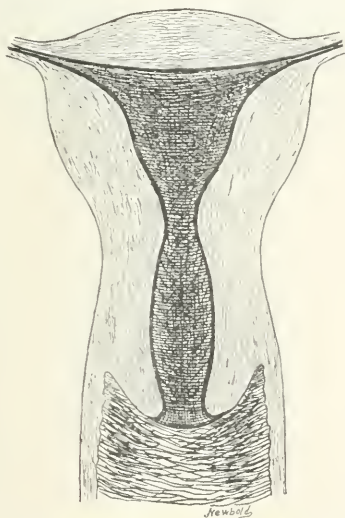


FIG. 4.—Diagram of normal uterus.

year, profusely and at intervals of four and five weeks. Menstruation became still more profuse after marriage, since which time she has had an intermenstrual discharge and pain in back and abdomen.

Examination showed a wide vagina with no apparent cervix, but in the vaginal vault were two dimpled openings 2 centimetres apart. A sound in the right os entered a sharply retroverted soft uterine body. The sound in the left os passed into a smaller, harder body lying in an anteverted position. Right ovary smaller than normal; left, size of a plum. Men-

struation occurred only from the left uterus. (*Centralblatt für Gynäkologie, Leipzig, 1892, xvi., p. 51.*)

6. Bornhard, O. *Uterus Duplex, Vagina Duplex*.—Patient 26 years old; menstruated regularly from fourteenth year. Came under observation because of sterility. She had a double vagina, with a small cervix in each fornix. The uterine bodies were separated from each other and infantile in development. (*Centralblatt für Gynäkologie, 1897, xxi., p. 1464.*)

7. Francaviglia, Mario Condorelli. *Uterus Duplex*.—Patient 18 years old; menstruated at 15; menses normal. Coitus in instances painful and accompanied by loss of blood. Never pregnant. Two vaginæ found. Two cervixes, double fundus.

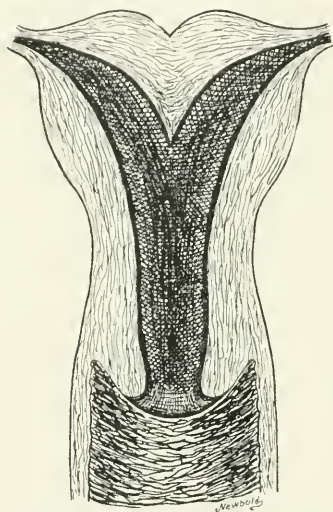


FIG. 5.—Diagram of uterus arcuatus. Septum may extend a variable distance toward cervix.

No symptoms given. (*Giornale Italiano delle Malattie Veneree, 1889, p. 426.*)

8. Prof. Cuzzi's clinic, A. Cioja, assistant. *Uterus Duplex, Vagina Duplex, in a Fetus*.—Patient 46, peasant; XII para; pregnant and under observation in hospital because of nephritis with cardiac complication. Labor began eighth month; more tedious than usual in premature labor. Much loss of blood observed between contractions. Presenting head appeared to be carried back by some elastic force between contractions. Fetus extracted, dead. Cause of dystocia found to be an abnormal distension of the fetal abdomen, which was 35 centimetres in circumference. Further excessive hemor-

rhage. Adherent placenta removed by physician. Found to be seat of serious degeneration process. Fetus found to have double uterus and vagina. (*Gazzetta Aegti Orpedati*, 1891, p. 670.)

9. Scialdoni, Alessandro. *Uterus Duplex, Vagina Duplex*.—Patient 23, prostitute. Treated for blenorragia. Menstruation regular. Double vagina, double uterus and cervix. No clinical symptoms. (*Giornale Internazionale delle Scienze Mediche*, 1891, p. 534.)

10. Dr. Nitot. *Uterus and Vagina Duplex*.—Patient 34

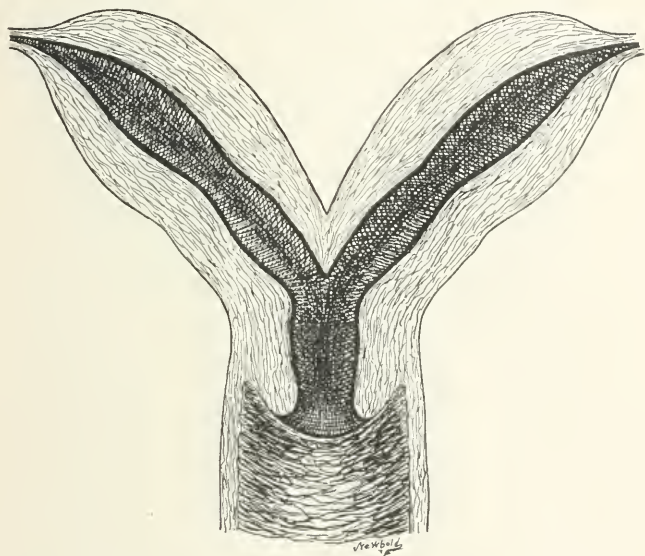


FIG. 6.—Diagram of *uterus bicornis*. One horn, usually the right, is often rudimentary.

years; married; has never been sick, never pregnant. Has had leucorrhœa for a few weeks, pain over the lower abdomen, and pain on urination. Her attending physician found a painful mass on left side, which he supposed to be cystic salpingitis. Nitot, called in consultation, found a double vagina and uterus. There was also some catarrhal salpingitis. Patient menstruated from both sides. (*Société Obstétrique de Paris, Bull. et Mem.*, 1891, p. 218.)

11. Swope, Samuel D. *Double Uterus and Vagina*.—Patient was 27 years old and had been married six years. She was sterile and applied for treatment for metrorrhagia. She had a divided vagina and double uterus. Curetting the left uterus

relieved the patient. No other symptoms given. (*Medical News*, lvi., p. 391.)

12. Sibert, M. *Double Vagina and Uterus*.—Patient a prostitute of 17½ years. External genitalia normal. Menses occurred from both sides simultaneously. (*La France Médicale*, January 8, 1897.)

13. Sprigg, William M. *Bicornate Uterus*.—Patient white, unmarried, 36 years old. Came for treatment for incontinence of urine, which has existed almost continuously since childhood. Otherwise health good. First menstruation at 13. Patient's physical development good; figure symmetrical,

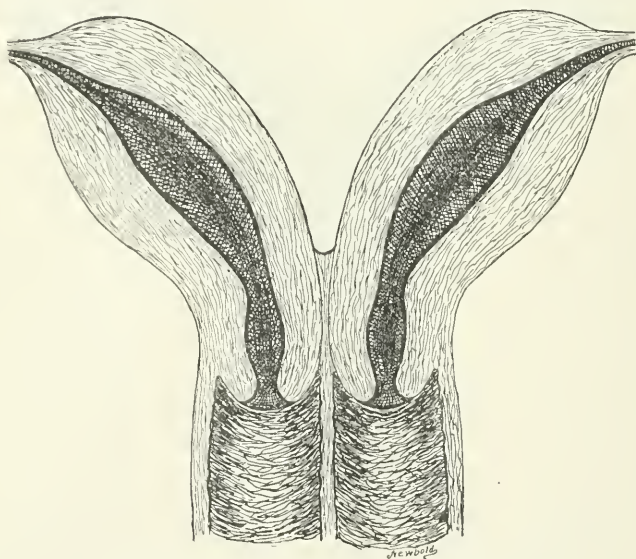


FIG. 7.—Diagram of uterus duplex and vagina duplex.

with no disposition to lateral broadening of the body, as is said to sometimes occur with uterus bicornis. External genitals normal. Double vagina and uterus. Left horn of fundus a little to left of median line and smaller than its fellow. Right horn of fundus united to its fellow throughout the greater part of its length, and then fundus deflected at an obtuse angle to right side. The fact that incontinence of urine was most distressing for a week prior to and week following menstruation led Sprigg to believe that there must be some association between the two conditions. The anterior attachment of the vaginal septum extended from between the double cervix to a

point in the anterior vaginal wall just under the sphincter muscle of the bladder. Patient menstruated one month from one side and the next from the other. (THE AMERICAN JOURNAL OF OBSTETRICS, 1895, p. 78.)

14. Heitzmann. *Uterus and Vagina Duplex*.—In a girl of 23, treated for leucorrhea, a septum divided the vagina into two unequal parts, each of which contained a normal though small cervix, left one measuring 5 centimetres, right one $4\frac{1}{2}$ centimetres with its respective uterine body. Small, bridge-like mass united these two uteri at the level of the internal os. Both ovaries normal, though small. (Dos Santos, *Zeitschrift für Geburtshülfe und Gynäkologie*, No. 14, p. 140.)

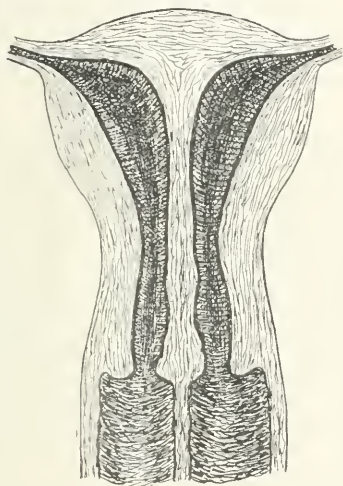


Fig. 8.—Diagram of uterus septus and vagina duplex.

15. Schlutius, K. *Uterus Septus, Double Vagina*.—A. H., 21 years old; has always menstruated irregularly and painfully since her fifteenth year. At the introitus vaginae a protruding vertical septum 2 millimetres thick separated two vaginae, each with its perforate hymen. Though narrow, each vagina contained a conical cervix with os. The left cervix was the smaller and convergent toward the right. Sounds demonstrated a septum between the cervixes reaching to about the middle of the uterus, where there was a defect or opening. Above this opening the septum was perfect again. Left uterus measured 6 centimetres, the right 8 centimetres. The sound, entering the left uterus, passed to the left; on the right it turned toward the right. Bimanually the uterus was found

to be anteverted, with a saddle-like depression at the fundus. Right tube and ovary were normal; the left were under-developed. Menstrual pain was felt on the left side. (*Centralblatt für Gynäkologie*, 1898, xx., p. 436.)

16. Mundé, Paul. *Uterus Septus, Vagina Duplex*.—A girl of 23 complained of intense dysmenorrhea, from which she had suffered for twelve years. Had been treated by a gynecologist by dilatation and faradism without benefit. Her family physician accidentally discovered that there were two vaginæ, two cervices, two distinct cavities in the uterus, all less well developed on the left side. She menstruated from both uteri; the flow was not excessive. Mundé excised the septum in the vagina, divided the uterine septum, dilated and packed the uterus with gauze. Patient was entirely relieved from her pains. (THE AMERICAN JOURNAL OF OBSTETRICS, xxvii., No. 3, 189.)

17-18-19. Edebohls, George. *Three Cases of Uterus Septus*.—I. Cirrhosis of left ovary. Movable right kidney. Nephrorrhaphy, curettement, removal of left ovary and tube, and ventrofixation of uterus performed at one sitting. Double uterus discovered during curettement. Uneventful recovery.

II. Patient 26, married. Patient has never been ill in her life. Menstruation at 14, regular and painless. One child. Miscarriage at eight to ten weeks, followed by free bleeding, fever, and mild sepsis. Patient etherized for emptying and cleansing of uterus. Double uterus discovered.

III. Patient 26, married a year; well up to two years ago, when she had leucorrhea, metrorrhagia, and bearing-down pains. Had uterus curetted, and symptoms disappeared. Six months ago reappeared with pain in back and both inguinal regions. Diagnosis of double uterus made by palpation. Curetting confirmed the diagnosis. Celiotomy was performed to lift the heavy, retroverted uterus out of the pelvis and attach its fundus to the anterior abdominal wall. Peritoneum found to be studded with fresh miliary tubercles and some in degeneration. Tubercles on tubes, ovaries, and uterus. Total extirpation of uterus and adnexa done. Patient left hospital on twenty-eighth day after operation. (*Medical Press and Circular*, 1895, ii., p. 155.)

20. Currier, Andrew F. *Bicornate Uterus*.—Patient married woman of 25; thin and poorly nourished. Consulted because of hemorrhoids. Has had five children. Her labors were tedious and last three breech presentations. No miscarriages.

Menses began at 16, painless, scanty, regular, last two days. At an abdominal section for releasing retroflexed and adherent uterus the right ovary and tube were removed. Examining what was supposed to be the distended rectum, a tube and ovary were found proceeding from its outer side, and it was seen that there was a bicornate uterus. The structures were drawn upward into the wound and the diagnosis verified. The two uteri were symmetrical, pear-shaped, $2\frac{1}{2}$ inches from top of fundus to the bottom of the wide sulcus separating them, and each in all respects like a well-developed uterine body, except that the inner side of each was perfectly smooth, without a projection or appendage. The round ligaments were shortened according to Wylie's method. Patient made a good recovery; health now much better than it has been for a long time. (*Annals of Gynecology and Pediatrics, 1889-90, iii., p. 321.*)

21. Meyer. *Uterus Bicornis*.—In this case the rudimentary horn was on the right side. (*Centralblatt für Gynäkologie, 1898, xx., p. 566.*)

22. Doléris. *Uterus Bicornis*.—Patient had total hysterectomy. Uterus found to be double. Symptoms for which removed, double sciatica and paraplegia with pain and dyspareunia. No symptoms given. (*Nouvelles Archives d'Obstétrique et de Gynécologie, 1880, p. 687.*)

23. Mundé, Paul. *Uterus Bicolis, Unicorporeus*.—Patient middle age; married ten years. In third year of marriage had premature labor at sixth month. Two miscarriages since from accidental causes. Had erosion of os and leucorrhea, for which Mundé treated her when he discovered the abnormality. (*THE AMERICAN JOURNAL OF OBSTETRICS, 1878, ii., p. 575.*)

CASES OF RETENTION ACCIDENTS IN DOUBLE UTERI AND DOUBLE VAGINÆ.

24. Gusserow. *Pyocolpos Lateralis and Pregnancy; Uterus Duplex*.—Miss B., age 21; menstruated painfully and irregularly from her nineteenth year. The last menses were on March 17, 1889; since then she has had a profuse discharge, which has become very offensive during the last three weeks. There is a history of a previous amenorrhea lasting three months, in which the menses were replaced by a mucous flow. The vagina is narrow, the uterus enlarged, the cervix small and turned toward the back, the os elliptical, discharging fetid

pus. The finger can be passed into the uterine cavity, which is empty and turned toward the left. The pus escapes from a small opening which was probably made by the point of the forceps in the right wall of the cervix, as what is probably the original opening is found higher up. As the uterine enlargement was toward the right, and the empty cavity found was toward the left, the diagnosis of double uterus with closure of the right side was made. The cervix was split laterally. After escape of much foul pus, although not in the quantity expected, the size of the uterus remained about the same. The finger could not reach the fundus, and received the sensation of meeting a foreign body. Pus continued to flow, and there was fever and hemorrhage. The uterus was curetted eleven days later, bringing to light a three months' fetus. The origin of the pus was inexplicable. Early in the case a protrusion of the right side of the vaginal wall had been noticed; on pressing this, pus welled from the cervix. Passing the finger into the cervix, and from thence into the uterus on the right side, there was found in the vicinity of the internal os a smooth-walled cavity leading downward toward the labium minus. This cavity was filled with pus and proved to be the right vagina. The septum when excised was smooth and pale on one side, red and redundant on the other, corresponding to the closed vagina.

The patient on discharge had a wide vagina with some remnants of excised septum, a voluminous, widely cleft cervix, on entering which the finger impinged on the septum dividing the uterus. (*Charité Annalen, Berlin, 1890, xv., p. 618.*)

25. Halter, G. *Uterus Didelphys; Hematocolpos, Hematometra, Hematosalpinx*.—M. A., age 24, married six months; menses first at 16, every four weeks, always painful, lasting two days. For ten days the patient has noticed a swelling of the abdomen, with pain.

Examination shows a smooth tumor, painless on pressure, reaching to umbilicus on the right side. From this a smaller tumor, round, somewhat movable, diverges, producing itself a prominence in the abdomen. A fluctuating tumor the size of a small egg protrudes from the right vaginal wall, pushing back the labia minora. An unruptured hymen encircles this tumor. The vagina is very narrow, passes toward the left, and contains a small, round cervix discharging purulent matter. Incision into the vaginal tumor reveals a double genital system with atresia of the right vagina, causing hema-

tocolpos, hematometra, and hematosalpinx of that side. The operation was followed by a sanguineous flow lasting for fourteen days. Examination when discharged shows vaginæ to be separated by a thick and fleshy septum just reaching the hymen. Both uteri are about the same size; cervix of diseased side is still patulous; the hematosalpinx has disappeared. The uterine bodies are widely divergent from one another, but the cervices are intimately connected. All abdominal pressure was carefully avoided during and after the operation. To avoid vomiting, no ether was given. (*Wiener Medizinische Presse*, 1892, xxxi., p. 49.)

26. Sicherer, O. v. *Uterus Bicornis, Bicollis; Pyometra and Pyocolpos Lateralis*.—S. P., 18½ years old; menses first at 14 years and 9 months, appearing every two weeks the first year, but now at intervals of five to six weeks. From lasting three to four days in the beginning, last from two to fourteen now, but never profuse. With each period there is severe abdominal pain, not entirely ceasing in the intermenstrual period. A tumefaction at right side of perineum, first observed some years ago, has gradually increased in size. This tumor, after a puncture had discharged a large quantity of blood, had refilled after some months and then ruptured spontaneously with same result, to which was added a purulent discharge, which later became fetid. Examination showed a narrow vagina, the os and cervix normally placed, uterus leaning toward the left; tumor in right side of vagina, which near the cervix reaches size of a man's fist. An incision of the bulging vaginal wall made a permanent opening. At next menstruation blood was seen to flow from both vaginæ. The septum was very fleshy, the uterine bodies widely separated. The cervix in atresic vagina cannot be seen, but can be palpated. The uterine bodies turn, one toward the right, the other toward the left. (*Archiv. für Gynäkologie, Berlin*, 1892, xl., p. 339.)

27. Lochlein, H. *Uterus Didelphys; Hematometra et Hematosalpinx*.—K. D., 18 years old; first menstruated at 16, and since then painlessly and fairly regularly. For one year she has had pain in abdomen during periods of two to three days. Lower part of abdomen has also increased in size. On examination a cystic tumor is found, reaching from pelvis to umbilicus. A uterus, turned toward the left, is united by a band of the thickness of a thumb to the general mass. At the side of the cervix on the right side is a sausage-shaped tumor

reaching to below the middle of the vaginal wall. The left ovary, somewhat thickened, can be felt near the left border of the uterus.

An abdominal section showed the right tube filled with altered blood and distended to the size of a child's head. This tube, intimately connected by adhesions to surrounding tissues and also to the vermiform appendix, was removed, together with the distended uterine body to which it led, as there was no communication between this uterus and the single vagina, it ending in a bed of connective tissue more than a finger's breadth removed from the vagina. This isolated uterus was better developed than its neighbor with a vagina. (*Centralblatt für Gynäkologie, Leipzig, 1894, xvi., p. 997.*)

28. Mertens. *Uterus Bicollis, Unicorporeus; Atresia of One Cervix*.—Patient is 26 years old; first menstruated at 14, at first every two weeks, later every six to eight weeks. Has been married one and a quarter years, and has only menstruated three or four times within that period. The upper part of the vagina is separated into two pockets by a septum one-quarter centimetre thick. In each pocket is a cervix, the one on the left being the larger. Through the rectum a long, narrow body can be felt with ovaries and tubes on each side. A sound enters uterus from left cervix, reaching an anteverted uterus $6\frac{1}{2}$ centimetres long. Sound could not be passed through smaller cervix. Removal of septum would facilitate conception. (*Centralblatt für Gynäkologie, Leipzig, 1894, xvii., p. 1001.*)

29. Mackenrodt. *Uterus Duplex, Atresia Colli*.—The specimen shown was a left uterus which was embedded in connective tissue without any connection with the normal uterus of the right side. This uterus is remarkable because of its fetal development, long cervix, short body.

Muscular layers are well developed; cavity contained a hematometra. This organ was removed because there was no outlet for its contents and because of the severe and almost continuous suffering of the patient. (*Zeitschrift für Geburtshilfe und Gynäkologie, Stuttgart, 1896, xxxv., p. 302.*)

30. Winter. *Hematometra in Rudimentary Horn of Uterus Bicornis*.—A patient 23 years old had menstruated painfully since her sixteenth year. Since the nineteenth year the pain had increased. A rudimentary uterine horn was mistaken for a dermoid growth and removed. The tube of that side had

an open end, but was not well developed. (*Centralblatt für Gynäkologie*, 1898, *xxi.*, p. 508.)

31. Galabin, Alfred. *Double Uterus; Hematocolpos Lateralis; Death*.—An unmarried patient of 15 had severe dysmenorrhea. Menses had appeared the year before, were fairly regular, but a little over-time. They lasted three to seven days, were rather profuse, but no clots or pieces of membrane were passed. There was pain before flow, but more severe during flow; central, and felt in hypogastrium and back; intermittent and agonizing. Nausea and retching with nervous or hysterical symptoms. No enlargement of abdomen. For several months slight pain between periods.

Under anesthesia a double uterus was found. The right side admitted probe freely. A puncture was made to left of os,

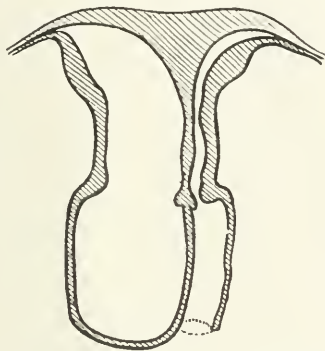


FIG. 9.—Mundé's case of right hematometra and hematocolpos with vagina duplex and uterus septus.

and after the trocar had punctured a thick wall ten ounces of treacly fluid escaped. Did not wash out cavity for fear of exciting spasmodic contractions. Patient was relieved after operation, but remained too hyperesthetic to allow of syringing out the cavity. Temperature rose. Parent and friends refused anesthesia to wash out cavity until seventh day. Semi-purulent matter found. Temperature high. On twelfth day patient complained of severe pain; vomited everything she took. Collapse. Death. (*Transactions of the Obstetrical Society of London*, 1882, *xxiv.*, p. 21.)

32. Mundé, Paul. *Uterus Septus, Vagina Duplex; Right Hematocolpos and Hematometra*.—Well-formed woman of 23 complained of abdominal pain at intervals for several years. Menstruation began in her seventeenth year and had been normal in amount. A bluish tumor was found on right side

of vagina, which pushed the intact hymen to the left. This tumor extended above the pubes, where it appeared the size of a clenched fist. There was an indistinct fluctuation. The septum was excised from vulva to fundus and the bleeding edges of the vaginal walls united with catgut. Serious hemorrhage from vaginal wound occurred on fifth day, but further recovery was uneventful. (THE AMERICAN JOURNAL OF OBSTETRICS, *xviii.*, No. 3, 1893.)

33. Blanc, Edmund. *Bilocular Uterus; Hematometra*.—A girl 18 years old applied for treatment for dysmenorrhea and pelvic tumor. Had had only three menstrual periods. Symptoms appeared with first menses. There was anal tenesmus, with agonizing pain like pelvic peritonitis, syncope, nausea, and vomiting. Diagnosis of hematometra and bilocular uterus. Operation through vagina with a “trocar-sonde” allowed dark, viscid blood to escape and resulted in complete relief of patient, whose menstruation became regular and painless. (*La Loire Médicale*, 1895, p. 3.)

34. Berlin, Fanny. *Uterus Didelphys; Atresia of Right Cervical Canal, and Retention Cyst; Death*.—A girl of 15, who had begun to menstruate at 12 years, was always regular, flowing for five days. She had much pain, beginning with the appearance of the flow and lasting for two or three days. Her general health was good. She came to hospital for three menstrual periods, when her pain was found to be agonizing and controllable only by morphine. After a consultation of physicians, the majority held that there was a tumor of the right ovary. Dr. Berlin felt per vaginam a small tumor, the size of a tangerine orange, lying in the right cul-de-sac, apparently distinctly separate from the body of the uterus, which was pushed to the left. A small virginal cervix, which moved with the uterus in the left cul-de-sac, was felt per vaginam. The tumor seemed movable, not very sensitive to the touch, and lay so low that it seemed as if it might easily be enucleated per vaginam. Several months later patient came for operation. She was nervous, took anesthetic badly; her pulse went to 120 and never came down. The abdomen was opened and the supposed tumor found deep in the pelvis, flexed laterally upon itself. From the top of it ran a Fallopian tube, and under the tube in the folds of the broad ligament lay an enlarged ovary; to the left of this body was another similar to it, only normally anteverted, with a tube and ovary on its own side. A probe passed the cervix into the left uterus. No cervix belonging to

the right uterus could be felt in vagina. but, as all pain was located on that side and probably due to the enlarged left ovary, this ovary and tube were removed, the uterus straightened on its axis, and the abdomen closed. Patient died on third day, apparently of heart failure. Autopsy showed two completely separated uteri. (*Annals of Gynecology and Pediatrics*, 1892, v., p. 193.)

35. Lewers, Arthur H. N. *Double Uterus; Hematometra; No Vagina*.—Reports the case of a girl of 17 who had never menstruated. She sought advice on account of severe pain in hypogastric region and lower part of back. Operation showed total absence of vagina and a double uterus, each half of which was distended by retained menstrual blood. An artificial vagina was created and kept open by bougies and a pessary. (*Transactions of the Obstetrical Society of London*, 1896, p. 327.)

36. Lebedew. *Uterus and Vagina Duplex; Hematometra and Hematocolpos*.—One half of genital canal atresic, with hematometra, hematocolpos, etc. Patient 21 years old; has abdominal pain, recurring every three weeks, increasing in severity, finally becoming continuous. Rectal examination shows fluctuating mass filling vagina, dividing into two swellings above the pubes. Incision of hymen with discharge of blood. Later examination shows vagina to be divided, about one-half inch above hymen, into two vaginae, each containing a cervix with uterine bodies, sound measuring 4 and 4½ inches respectively. Fingers could be pressed in between cervices as well as uterine bodies.

37. Freudenberg. *Single Vagina, Uterus Duplex; Right Hematometra; Death*.—Girl of 15; single vagina with hematometra of one uterine body. Blood withdrawn by puncture, canal closing. A piece of tissue was removed two years later to make a permanent opening. Patient died of peritonitis caused by rupture of tubal cyst. Uteri were entirely separated. The rectum lay between them, united to them by adhesions. Right horn had contained the blood. The cervices were united by triangular plate only, bringing the lower part of the cervices close together. (*Dos Santos, Zeitschrift für Geburtshilfe und Gynäkologie*, No. 14, p. 140.)

38. Cullingworth, Charles J. *Uterus Bicornis; Hematometra*.—Patient 28, married eight years, no pregnancy. Five years ago she began to have an inoffensive purulent vaginal discharge, which would cease for a few weeks and then reappear.

A year later this discharge became offensive. Recently, if the discharge ceased for a few days, she became very ill and suffered from headache, sickness, faintness, and pains in the back and pelvis. These symptoms were relieved when the discharge reappeared. A vaginal examination under ether showed very offensive pus and blood issuing from the cervix. The sound passed a normal distance, but toward the left. Bimanually a mass the size of a closed fist was felt extending upward, behind and to the right of the uterus. It was at first

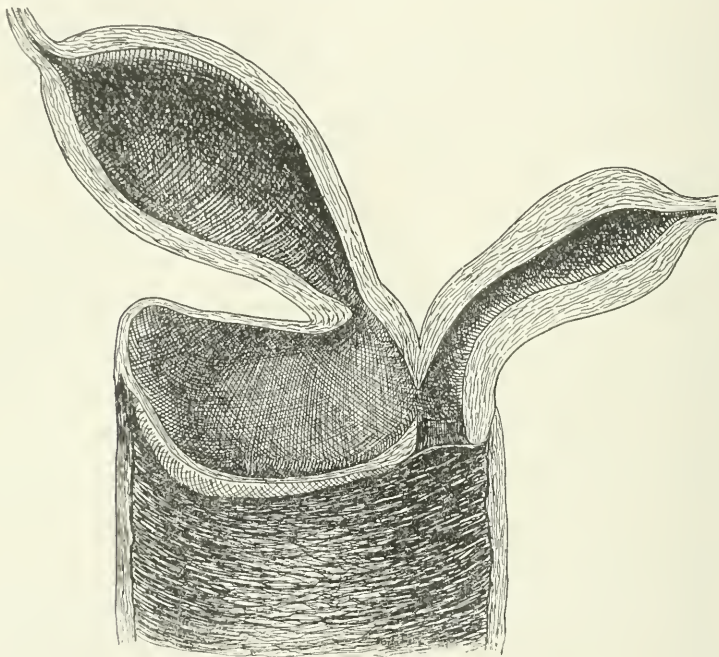


FIG. 10.—Cullingworth's case of hematometra in uterus duplex. The right cervical opening had become occluded and the retained fluid broke through the septum between the cervical canals.

thought to be a sloughing fibroid in the right posterior wall of the cervix, but indistinct fluctuation was made out and it was determined to be a suppurating cyst. Abdominal section showed a bicornate uterus with each horn well developed, the right being larger, more globular in shape, and further back in the pelvis than the left. A soft swelling could be felt below the peritoneum and below the convergence of the two horns. The abdomen was closed and the swelling opened per vaginam, when it was found to be the expanded right half of the cervix,

as shown in Fig. 10. Later the cervical septum was divided. Patient was relieved of her symptoms and made a good recovery. (*Transactions of the American Gynecological Society*, xviii., 1893, p. 434.)

39-40. After discussing his own case, Cullingworth gives rather full abstracts of the following cases not already mentioned above: Breisky. *Pyometra and Pyocolpos Lateralis*; two cases, in both of which, after a period of pain, there had been a sudden discharge of thick, treacly blood, and relief. Later a purulent discharge led to examination and the finding of a double uterus and vagina. Permanent relief followed the slitting of the septum in each case. (*Archiv. für Gynäkologie*, 1871, pp. 848 and 451.)

41. Décès. *Hematometra and Hematocolpos; Death*.—A girl of 16 had menstruated for one year. For eight months she had observed swelling in left iliac region, more pronounced during menstruation. There was double uterus and vagina, the right normal, the left ending blindly below. Left vagina was punctured and decomposed blood escaped. Patient died from peritonitis. Autopsy revealed ruptured sacculated cyst from left tube. (*Bulletin de la Société Anatomique*, July, 1854.)

42. Leroy. *Hematometra; Death*.—Patient 19. Great pain at each menstrual period. Double uterus with retention of menstrual fluid in right horn, forming a fluctuating swelling which filled the true pelvis and reached almost to the umbilicus. Death occurred from peritonitis following a vaginal puncture and evacuation of the fluid. (*Journal de Connaissance Médicale*, 1835.)

43. Santesson. *Double Uterus and Vagina; Unilateral Hematometra; Death*.—A girl aged 18; had never menstruated. The vagina was double and very small. At upper part of left vagina a bulky, spherical tumor could be felt. The tumor was continuous with a swelling in the abdomen, of the form of the uterus and reaching to the umbilicus, which had been gradually increasing for three years. The vaginal septum was slit and an incision half an inch long made in the most projecting part of the swelling. As no cavity was reached, a sound was passed through the incision and felt to enter a cavity without touching the opposite wall. Death on seventh day from peritonitis. (*Pr. Medizinische Zeit.*, 1857.)

44. Besorius. *Double Uterus and Vagina; Right Hematometra and Hematocolpos; Death*.—Single woman of 21.

Severe pain and pressure in the pudenda for three weeks. On the right a cylindrical swelling extended the whole length of the vagina. This was incised and blood escaped. Death from peritonitis in six days. Autopsy showed double uterus and vagina; right tube had ruptured and permitted escape of infected blood into peritoneal cavity. (*Monatschrift für Geburtskunde*, 1862, p. 481.)

45. Simon. *Hematometra and Hematocolpos*.—Girl of 15; double uterus and vagina. After three apparently normal menstrual periods, began to complain of pain in back and pelvis, which increased from month to month. Examination and incision of occluded left vagina resulted in complete relief. (*Monatschrift für Geburtskunde*, 1864, p. 292.)

46-47. Freund. *Right Hematometra and Hematocolpos, with Bicornate Uterus and Double Vagina; two cases*.—I. A girl of 17; first menstruated at 13, now has fulness and tenderness in the hypogastrium, and a fixed tumor on the right side of vagina, descending 2.5 centimetres below the level of the cervix. An incision opened a rudimentary vagina and evacuated the fluid.

II. A girl of 16; first menstruated at 13. Menstruation was painful and recently excessive. Suffered from insomnia and was occasionally delirious. Defecation and micturition were attended with tenesmus. Hypogastrium very tender. Tumor on right side of vagina. Incision relieved. (*Berliner Beitrag für Geburtshülfe und Gynäkologie*, ii., p. 26.)

48. Nacke. *Unilateral Hematometra and Hematocolpos; Uterus Bicornis and Double Vagina; Death*.—Patient of 20; first menstruated at 15, irregularly and with pain in head, back, and right lower abdomen. A tense, elastic, and fluctuating swelling gradually formed in right iliac region and was particularly painful at menstrual periods, which became more regular after 17. Per vaginam, cervix was high up in middle line. Anterior vaginal wall was bulged downward by the swelling. Winckel diagnosed a bicornate uterus with hematometra in the right half. The swelling was punctured and some dark blood escaped. Next day the puncture was repeated. On the day following the second puncture the patient complained of sudden pain in right groin, and the tumor disappeared. Death on fourth day. Autopsy showed peritonitis and a ruptured cyst of the right tube. The perforation made by the trocar led from one vagina to the other. (*Archiv. für Gynäkologie*, 1876, p. 471.)

49. Emmet, T. A., mentions a case of double uterus and vagina, with retention of menstrual fluid on one side. The symptoms were pressure and bearing down, which had existed for several years. No operation, as patient did not return. (*Transactions of the American Gynecological Society*, ii.)

50-51. Hegar. *Hematometra in Rudimentary Horn of Bicornate Uterus; two cases*, one 26, the other 19; in each painful menstruation and pain in pelvis and back. Per vaginam, in each a swelling was found to right of uterus, a furrow being felt between it and the uterus. The cavities were drained. Hegar says the diagnosis is easy, as there is no tumor that springs from the isthmus uteri with a round or half-round pedicle. (*Berliner Beitrag für Geburtshülfe und Gynäkologie*, iii., p. 141.)

52-53. Neugebauer records two cases of *Hematometra with Double Uterus. Death*, in girls of 19. In one the swelling was on the right side, in the other on the left. Usual symptoms. Death resulted in each from septic peritonitis after puncture through the vagina. He refers to the records of 15 cases operated upon, with 7 deaths. (*Archiv. für Gynäkologie*, 1871, ii., No. 2.)

54. Nicolaysen. *Hematometra; Uterus Duplex; Death*.—A patient, age 21, suffered for three years from pain in the right hypogastric region, especially during her regular but rather profuse menstruation. For the same period she had noticed a slowly increasing, elastic, movable tumor, now three inches long and one inch broad, in the right iliac region. Lower down and nearer the median line was another tumor filling the pelvis and rising above the symphysis. Both were painful on pressure. No trace of a cervix could be felt per vaginam. Diagnosis of tumor of the ovary, adherent to Douglas' pouch and pushing the uterus back, was made. The tumor was aspirated through the vagina and a small amount of dark-brown fluid drawn off. Death from septic peritonitis on the ninth day. Autopsy showed the uterus "quite divided into two," but the right cavity was atresic and had been distended with retained menstrual blood. (*Nordsk. Med. Arch.*, v.)

55. Thomas, T. G. *Hematometra; Uterus Bicornis*.—A married woman of 39 had suffered excessively from pain at each menstrual period for sixteen years. She had an abdominal tumor, supposed to be a uterine fibroid, and had begged for operation. Drs. Thomas, Emmet, and Hunter were agreed that operation would almost certainly prove fatal, and inter-

ference was postponed. Finally the abdomen was opened, and, finding that the apparent fibroid showed fluctuation, it was punctured and one and a half pints of menstrual blood evacuated. Its true nature was then recognized and its edges were stitched to the abdominal wound and a drainage tube inserted. (*New York Medical Journal*, 1882, p. 517.)

CASES OF PREGNANCY IN DOUBLE UTERI DELIVERED
WITHOUT SURGICAL INTERFERENCE.

56. Hochstetter. *Uterus Bicornis Duplex; Septum*.—A primipara 23 years old, received for confinement, was taken with eclampsia soon after entering the hospital. Uterus toward right, fundus three finger lengths below ensiform cartilage, vagina narrow, cervix dilated, head deep in pelvis. During the examination difficulty was experienced in passing between head and os on left side. An hour later, on examining, found a thick membrane stretched in front of head, preventing finger passing upward. A little later, on making another examination, head was much lower and membrane gone; assistant had found this membrane on making his first examination. On repeating it now he declared that the membrane was still there. This strange condition was solved by discovering two vaginæ, one containing the pregnant uterus; in the other no cervix could be felt, but the vaginal septum could be carried by exploring finger into os of the other side. Forceps were applied with difficulty; the extraction was also difficult on account of the narrowness of the vagina, but had to be hastened on account of the eclampsia. After the delivery the other cervix was readily found, somewhat dilated, allowing finger to enter the uterine cavity, which was distinctly separate from the puerperal one. Placenta removed by expression; persistent hemorrhage. Convulsions reappeared on first and second days, with death on third. On autopsy it was seen that the uteri were entirely separate, a membrane passing from above downward from bladder to rectum; lower part of cervixes were united by connective tissue. (*Charité Annalen, Berlin*, 1894, xix., p. 538.)

57. Chapin, Warren B. *Uterus Septus*.—Patient 28; primipara; four months pregnant. Had labor pains; usual treatment for abortion employed. Several days later, secundines not having been expelled, physician proceeded to empty uterus. Found os well dilated, but cavity apparently empty.

Then found second cavity, containing the placenta, separated from the first by a wedge-shaped septum. Later delivered patient of a six months' fetus from cavity which he had supposed to be unimpregnated. (*New York Medical Journal*, 1890, *lii.*, p. 352.)

58. Weist, J. R. *Double Uterus and Vagina*.—Married woman, 28. Applied for treatment for dysmenorrhea. Menses regular, but always painful. Health otherwise good. Married five years; never pregnant. Double vagina, cervix, and fundus. No treatment given except slight dilatation of both cervical canals. Patient became pregnant later; fetus on left side. Sound was frequently passed into the other side during the pregnancy. Labor normal, except that when the os was opened sufficiently for the head to pass, the margin attached to the vaginal septum was lower than its other portions, having the effect of causing the axis of the uterine outlet to deviate to the middle line of the pelvis. At the same time the vaginal septum was drawn upward and made tense. Some delay of the head occurring at outlet, forceps were applied. During this pregnancy one half of uterus remained almost quiescent, while the other underwent the changes of pregnancy, but the cervix of the unimpregnated uterus was elongated five or six inches. (*The American Practitioner*, 1883, *xxvii.*, p. 129.)

59. Lane, E. W. *Double Uterus, Double Pregnancy*.—Double uterus, with a fetus in each. Mrs. K., 30 years, primipara. Tedious labor; foot presented; child born dead. Tedious labor for second child, which was also born dead. Both placentæ retained and had to be removed by physician. Patient comatose for hours, but finally rallied and made good recovery. (*Atlanta Medical and Surgical Journal*, 1885, p. 275.)

60. Carr, W. P. *Uterus Septus*.—Records a case where the patient had a dead and decomposing fetus in uterus. Under chloroform, felt placental tissue through what seemed to be a thick membrane, which he could not break through. Finger by accident slipped into other side of the uterus and came in contact with dead fetus.

61. Dunning, L. H. *Uterus Duplex, Vagina Duplex*.—Patient 37; married a few months. Complained of pain during coitus and of some abnormality of genital organs. Menstruation was always irregular and scanty. Double vagina, uterus, and cervix found. Later patient became pregnant in right uterus; labor normal. Author concludes that malformations

of the uterus are more frequent than is usually supposed. (*British Gynecological Journal*, iv., 1888-89, p. 478. *From the Journal of the American Medical Association*.)

62. Donald, Archibald. *Uterus Duplex, Vagina Septus*.—Patient 28 years old. Consulted for severe metrorrhagia and pain in lower part of abdomen. Menstruation commenced at 14; regular and painless until Christmas, 1887. Then had been married four months, and, although menses had not ceased, she fancied, from a feeling of weight in pelvis and a slight increase in size, that she was pregnant. December 26, severe pelvic pain and flooding. States that among the clots expelled there was a large foreign body, and soon after this came away the flowing ceased. Six weeks later menorrhagia and pain returned. On examination found vagina normal in lower part; at upper third a loose, fleshy septum dividing vagina into two equal portions. Each compartment contained a cervix. Sounds were introduced into each cervix and uterus found to be double. Patient given opiates and rest in bed. Expelled a piece of placenta, after which complete recovery ensued. (*The British Medical Journal*, 1888, i., p. 1267.)

63. Dodge, L. P. *Double Uterus and Vagina with Pregnancy*.—Patient 37. First became pregnant after eighteen years' married life. Two vaginae, with perfectly developed septum; left larger than right. Two cervixes; two uterine cavities, with a perfect septum. Pregnancy in left uterine cavity; normal except that menstruation occurred every four weeks in the right cavity, which enlarged as gestation progressed. At the end of fourth, fifth, and sixth months flow excessive, demanding treatment. At end of seventh and eighth not so profuse. Appeared at ninth month two days before delivery. Labor normal. Presentation left occipito-anterior. Labor twenty-eight hours. Septum vaginae remained intact and right os did not dilate, nor was there the broadness of the person mentioned by most authors. (*Northwestern Lancet*, 1890, x., p. 335.)

64. Tombleson, James B. *Bicornate Uterus*.—Called in to see what was supposed to be a curious case of twins. Found large, almost symmetrical heart-shaped tumors reaching on each side nearly up to the costal margin. There was a deep central sulcus separating the two halves, of which the right was rather larger than the left. Physician thought that probably a fetus lay in each half of the tumor. Some hours later, clerk of hospital sent for author, saying that a child had been

born and that he thought a second one was present, lying transversely across the pelvis. On examination, in place of the earlier tumor a much smaller one was felt. Uterus found to consist of two horns, which united only at the cervix. Patient had been confined twice previously; on each occasion the child was premature, in this case early in seventh month, and on each occasion an erroneous diagnosis of twins had been made by the attending physician. (*The London Lancet*, July 31, 1897, p. 253.)

65-66. Giglio, Giuseppe. *Uterus Duplex, Vagina Duplex; two cases.*—I. Woman of 25, married. Consulted physician for uterine disturbances following abortion at three months, consisting of intermittent pain in the lower portion of the abdomen and pressure. Had had no previous disturbances. Menstruated for first time at 17 years. Large vagina divided by a septum. A transverse fold of mucous membrane hid the double cervix. Two sounds introduced, one in each cervix, showed the uterus itself to be double, with a septum.

II. Patient, 26 years, consults for muco-purulent vaginitis with chronic cystitis, for metrorrhagia and endometritis. Vagina high, but remains of a torn septum present. Two cervices, two fundi. The author says that out of 23 cases of uterus bicornis, Schatz found 2 pelvic presentations out of 3 cases. Müller does not believe that the anomaly has any influence on the presentation. The placenta is very liable to be abnormally situated. Out of 15 cases reported by Grinew in St. Petersburg, 6 had to have forceps delivery; the others, version and breech extraction or craniotomy. Bayard had 14 abortions in 14 cases of pregnancy. (*La Riforma Medica*, 1892, ii., p. 185.)

67. Leuf, A. H. P. *Uterus Bicornis.*—Patient of 18 years. On examination a crescentic-shaped fringe of mucous membrane was found, attached to the entire length of the anterior face of the cervix on the median line. It began at the anterior border of the os, passed up to the cervico-vaginal canal, and became lost on anterior wall of vagina. Twelve specular and four digital examinations were made, and, mainly by accident, it was found that patient had a uterus bicornis. In seeking to depress the os with a probe this slipped, exposing a septum within the canal a little back of the os. The view resembled that of the nares with the anterior portion of the septum gouged out. Double vagina was found later, also by accident. One side was much larger than the other. It took fifteen

specular and ten digital examinations to establish this anomaly. Vaginal septum was deficient in upper part for one to one and a half inches from the cervix. Patient had been pregnant twice; miscarried in both cases at about six weeks. (*Medical News*, 1898, *lxiii.*, p. 490.)

68. Arnold, E. G. Emerson. *Uterus Septus*.—Woman 22. Third confinement. Left shoulder presenting, arm prolapsed. Delivery by version. Child still-born. Uterus found to be double, separated by a septum reaching as far as the position of the internal os. Placenta and membranes occupied right and larger half of uterus, were expressed without difficulty; but some hemorrhage occurring, a hypodermatic of ergotin was given and uterus contracted well. Progress satisfactory until tenth day, when there was a rise of temperature. Intrauterine douche was given and a large quantity of shreds of decidual tissue evacuated from the left cavity and continued to pass for some days. Patient had had two previous pregnancies, one living child and miscarriage at sixth month. Catamenia had always been regular and somewhat profuse. Complete amenorrhea in pregnancies. Pelvis showed no increase of width, such as has been noted in some cases of double uterus. (*London Lancet*, 1895, *i.*, p. 988.)

69. Hauser, J. A. *Uterus Duplex, Vagina Duplex*.—Reports a case of perfect double vagina and uterus. Patient 23, married. Had one child born at seven months. Both uteri have been gravid at the same time and aborted voluntarily at the same time. Patient says, "I have been pregnant four times, all menstruation ceasing totally. First pregnancy in right side, carried seven months. A year later I lost a six months' child from left side, and the next May miscarried from both sides. First my pains began in the left womb, and I had a hemorrhage from there and a small miscarriage as large as a peanut, and I flowed for two weeks. Then I commenced to suffer from the right side and flowed from that womb for two weeks, and then passed second miscarriage, as large as a goose egg. Last one three weeks ago and of only six months' duration. Did not suffer much; flowed about ten days." Patient a wonderfully brilliant woman mentally, with great intuitive powers. Author thinks that the double genitals and the mental strength are evidence of a double condition of the organs of the brain! (*The Medical Brief*, St. Louis, 1896, p. 1330.)

70. Truzzi, Ettore. *Uterus Bicornis, Vagina Duplex*.—Patient a woman of 40, peasant. Early history negative except

for pain at menstrual periods, lasting seven to eight days. After marriage menstruation became somewhat irregular, and at one time ceased for five months without cause. Had four pregnancies, three of which went on to term, one interrupted at seven months. In first labor, podalic presentation, child died; second labor, vertex presentation, was tedious, but child lived; third, premature and spontaneous, child died when four months old: the fourth, normal and easy, child living. All puerperal periods except the third were accompanied by fever. Ever since the first labor the patient has had a sense of weight and pressure in genitalia, and sought medical relief when the anomaly was discovered. Vaginal septum has been partially destroyed by parturition. The two sides of the uterus are distinct. (*La Clinica Moderna*, 1896, p. 181.)

71. Kakels, Sarah Welt. *Uterus Duplex, Vagina Duplex*.—Reports the case of a woman 30 years old. Family history negative. Much leucorrhea and dysmenorrhea. Had been married nine years and menses had never ceased during that time. On examination found a small uterus, acutely anteflexed, fundus pointing somewhat to left. Small tumor on right of the uterus. Another examination showed another somewhat smaller introitus to the right of the first one, which led to another cervix, and the small tumor was found to be another smaller uterus with thin walls, slightly anteflexed, fundus pointing to right. Fornices of both vaginæ flattened near the septum. Right vagina near septum measured $2\frac{1}{4}$ inches posteriorly, 4 inches in length. Right uterus $1\frac{1}{2}$ inches long. Left vagina wider. Left uterus 2 inches. Adnexa could be easily palpated on both sides. Had pregnancy in left uterus and healthy child born at term. She had been subjected to treatment, cervical canal dilated, and faradic current applied to develop weak uterine muscle. Intrauterine stem inserted and dysmenorrhea diminished. Pregnancy occurred about a year later. Child extracted. Delivery of placenta spontaneous.

Solschawa reports a case in which the left uterus contained a fetus $1\frac{1}{2}$ months old, right uterus a three months' fetus.

Althen reports gravidity in both uteri, with abortion at fourth month.

Giles' statistics show that of 16 labors, 10 were normal and 6 complicated. Inertia of contraction is often reported.

In Strauch's case the septum vaginale had to be incised. Often the septum is torn completely by descending part.

Rossa reports a case in which one otherwise well-developed

vagina was occluded at its lower end. There was a communication with the patent vagina through a hole in the septum, through which impregnation had occurred and delivery took place.

Dr. Welt says that in 1894 Pfannenstiel tabulated from the literature 18 cases of uterus didelphys in adults. Twelve of these became pregnant, and there were in the whole 26 pregnancies. Pfannenstiel was very careful in his selection, excluding all doubtful cases. In 1895 Giles reported, from the literature of the last twenty-five years, 21 cases of uterus didelphys in living adults; is not so critical in his selection as Pfannenstiel.

72. Tuholske, H., records a pregnancy at full term in a woman with double uterus. Labor was tedious and child born dead. Woman made good recovery. Later the woman had a normal labor and child was healthy.

73. Blume, F. *Uterus Bicornis, Vagina Duplex*.—Reports a case in a woman of 26. Pregnancy in left uterus. Vaginal septum was so thick and firm that it was excised in fourth month. Normal labor at term. A second normal labor occurred the following year. (*Annals of Gynecology and Pediatrics, Boston, 1899, xii., p. 83.*)

74. Kendall, Francis D. *Uterus Septus*.—Reports the case of a primipara of 23. When physician removed a band of thick cicatricial tissue which was growing in front of the uterus, he found a double os. On introducing a uterine sound into each os the handles diverged. A year later patient was delivered of a ten-pound child which had been in left side. Began to menstruate six weeks after birth of child and continued regularly, discharge coming from right os, but had not menstruated at all during pregnancy. Second pregnancy four years later. Slight menstruation continued. Natural labor. Menstruation as before and from right os. (*Georgia Journal of Medicine and Surgery, 1898, p. 73.*)

Cheron, Henri, has collected reports of 38 cases, 18 of which were discovered during pregnancy or labor or after delivery, the others during some affection of the genital apparatus in multiparæ. (*L'Obstétrique, 1897, p. 116.*)

75-76-77-78. Pruvost. *Uterus Duplex, Four Pregnancies*.—Reports a case pregnant four times. First pregnancy terminated in a long, difficult labor with application of forceps. Second pregnancy, abdomen larger on left side than on right. Two orifices discovered. Labor normal. On same day expul-

sion pains began in the *other* uterus, and for five days shreds of membrane were expelled. Third pregnancy, same occurrences. Fourth pregnancy, the same, but membrane expelled entire. There had been alternation of pregnancy in the two sides.

There may be sometimes an obstruction formed by the empty uterus. In one of Las Casas dos Santos' cases the retroflexed empty uterus caused difficulty, while in Tauffler's case it narrowed the pelvic width.

Löhlein refers to a very difficult delivery in a woman with uterus bicornis duplex; the non-pregnant uterus, being much enlarged, formed a serious obstacle, which finally led to rupture of the gravid uterus.

In Wendling's case an impediment arose through a hemato-colpos on the occluded side, and a dead child was extracted after the vaginal septum was incised and a large amount of fluid permitted to escape.

Tschudy found a pregnancy in a right rudimentary uterus. The woman was in labor three days, os did not dilate, and there was danger of rupture of the uterus. Abdominal section was resorted to and the uterus amputated supra vaginam. Woman made a good recovery. (*L'Obstétrique*, 1897, p. 231.)

79. Drouillard, Louise, of Memphis, Tenn. *Uterus Bicornis*.—Reports the case of a woman of 35, Vpara; seven abortions, last one in July, 1898. Attack of dysentery and then flow of blood from uterus for three weeks, when a three months' fetus was expelled. Uterus was curetted, a few decidual shreds found, but uterus remained as large as a three months' pregnant uterus. Temperature rose to 104°. After severe pain a second fetus was expelled, bearing no evidence of maceration. Uterus bicornis. (*The Woman's Medical Journal*, Toledo, March, 1899.)

80. Edge, Fred. *Uterus Septus Completus*.—A woman of 34, married three years, consulted a physician for metrorrhagia after abortion. She had always suffered from dysmenorrhea. She had been very sick and ill during the whole of a previous pregnancy, though her labor and convalescence were normal. A double uterus was found, with both sides well developed. (*British Gynecological Journal*, 1896.)

81. Stoll, K. *Pregnancy in a Uterus Bicornis*.—Patient of 24, married three years, but never pregnant, entered hospital, supposed to have a tubal pregnancy. Has menstruated normally every three weeks from her fourteenth year up to three

months ago. Three weeks ago she had a hemorrhage lasting thirteen days and accompanied by labor-like pain. She is thin and anemic; has a swelling in hypogastric region toward the right side. Entrance to vagina is small; cervix is in left side of vagina, leading to a body lying in the left posterior cul-de-sac which gives the impression of an enlarged uterus. The right vaginal cul-de-sac is occupied by a cystic swelling, the upper part rising above the pelvis, lower near the cervix; it appears to be attached by a pedicle to the middle of the right uterine wall; these bodies move together. Patient was supposed to have a pregnancy in the right tube. Later it was

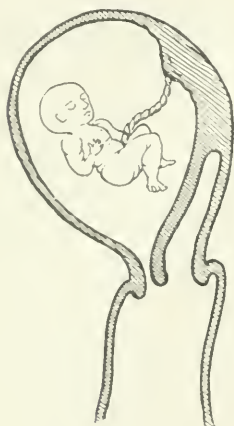


FIG. 11.—Mundé's case of pregnancy in right side of a uterus septus.

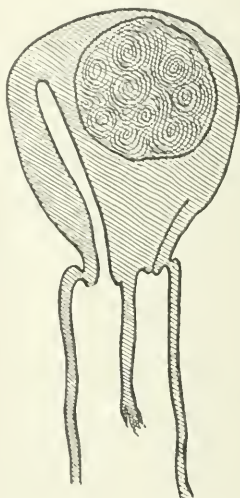


FIG. 12.—Mundé's case of fibroid in fundus of uterus septus.

found that a sound could be passed into each side, that is, into the uterus and the supposed tumor, and the diagnosis of pregnancy in one horn of a double uterus was made. The patient aborted. An examination ten days later showed both horns of same size and consistence; sounds passed each way 16 centimetres apart, the separation beginning 3 centimetres above external os. (*Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart, 1892, xxiv., p. 275.*)

82. Mundé, Paul. *Pregnancy in Right Side of Uterus Septus; Abortion.*—Patient of 25, unipara; admitted to hospital with diagnosis of extrauterine pregnancy of two and a half months. Close to the right of the uterus was an elliptical,

elastic mass the size of a fist. Rhythmical contractions could be excited in this mass which caused pain. Laparatomy showed the appendages normal and the uterus of uneven contour, as shown in the figure. A sound now passed from the vagina five and a half inches to the right and three inches to the left, making the diagnosis clear. Patient aborted twelve hours later. No complications. (THE AMERICAN JOURNAL OF OBSTETRICS, *xxvii.*, No. 3, 1893.)

83. Mundé, Paul. *Double Uterus and Double Vagina, Right Half Parous and containing a Fibroid, Left Half Rudimentary*—Patient 26; two children, two miscarriages; complained of pain in right ovarian region. Examination showed a double uterus containing a fibroid the size of two fists, a double vagina longest on the right side, and with a portion of the septum torn away as shown in the diagram (THE AMERICAN JOURNAL OF OBSTETRICS, *xxvii.*, No. 3, 1893.)

84. Elbing. *Lithopedion in Left Horn of a Double Uterus*.—A healthy peasant woman with a wide pelvis was delivered of her first child in 1889. During pregnancy the abdomen was very large. Fetal movements were felt in both sides, but ceased on left a few days before delivery, after which the abdomen remained quite large. In the third week of the puerperium there was burning pain in left side of abdomen, with increased temperature. During a confinement occurring one and a half years later the midwife diagnosed the presence of a second child presenting sidewise. Elbing, on examination, could make out the child's position and parts perfectly, but could detect neither fetal heart sounds nor movements. Entering through a wide os and long and narrow cervical canal, the finger reached an empty and recently pregnant uterus. Along the left side of the cervical canal ran a cleft, 0.5 centimetre long, which would not pass the finger tip. On the left of the uterus, at the position of the internal os, a band the thickness of the little finger passed toward the mass containing the other fetus. (St. Petersburger Medizinische Wochenschrift, 1890, p. 299.)

85. Schütz. *Uterus Bicornis*.—Gives the histories of two cases of pregnancy of the right side in multiparæ having bicornate uteri. (Archiv. für Gynäkologie, *ii.*, p. 293.)

86. Handfield. *Uterus Bicornis*.—Describes a case of normal delivery of a multipara pregnant in the left horn of a uterus bicornis. (Ref. Centralblatt für Gynäkologie, 1883, p. 538.)

87. Winter describes a specimen obtained on section in a case where the woman died three weeks after delivery of a pregnancy of the left horn in a bicornate uterus. The horn was entirely inverted and lacerated from fundus to internal os. (*Centralblatt für Gynäkologie*, 1887, p. 314.)

88. Grinew gives the case of a peasant woman delivered four times of twins, the bicornate condition being only demonstrated at the last delivery. There was but one cervix; horns united at internal os. (*Medizinische Bericht St. Petersburger Gebauanstalt*, 1880.)

89. Litschkus gives history of a case of uterus bicornis with common cervix diagnosed during delivery. (*Zeitschrift für Geburtshülfe und Gynäkologie*, iv., H. 2.)

90. Rossa. *Pregnancy in a Uterus Duplex*.—A patient 24 years old and seven months in her second pregnancy had been in labor one and a half days. The midwife could find neither cervix nor os. The consulting physician found a cervix very high, with its body toward the left. At its side in the abdomen was a tumor containing the fetus and supposed to be a tubal pregnancy. On examination a round tumor was found lying low in the vagina and giving the impression of a fetal head with thinned cervix stretched over it. This covering was found to be a vaginal septum. Patient was delivered normally and easily. Placenta was adherent and removed with difficulty. The two uteri were entirely separate and distinct. Two fingers could be placed between the cervixes. During the puerperium the left uterus threw off a decidua and diminished in size. Rossa was able to find records of nine cases of pure uterus didelphys, three among parous women. This is the tenth case. Her first pregnancy had been in the left uterus. Both pregnancies ended prematurely, probably because of want of development. There were never any menstrual troubles. The opening in the septum through which the child passed was not a tear, acted as a dilated os would, nor was any scar found later. The opening as finally located had the size of a lentil, with smooth and thin edges. (*Geburtsfall bei Uterus didelphys*, *Wiener Klinische Wochenschrift*, 1892, v., p. 501.)

91-92. Kiderlen, F. *Bicornate Uterus; Pregnancy; two cases*.—CASE I. C. S., 27 years old, had suffering from abdominal pain for four months, with headache, profuse leucorrhea, and general distress for the last six weeks. Menstruation since twentieth year, always scanty and at times painful.

Last menses three months ago; two and a half months ago had a hemorrhage that lasted four weeks. Had an abortion two years ago and natural labor one and a half years ago. On examination, cervix of medium size; body toward the left, anteverted and enlarged; the ovary of the same side was also enlarged. A round tumor the size of a fist was felt in the right side of the pelvis, having tense walls and united to uterus with wide, flat bridge. Diagnosis of tubal pregnancy. In curetting the uterus for decidual membranes some were readily removed; on passing curette a second time it seemed to pass in further and enter a larger cavity, producing an immediate hemorrhage. An opening was found in the cervix, leading into the right horn, which was three months pregnant. There was but one cervix, and that of ordinary appearance. Six months later history of one month's amenorrhea with enlargement of right horn. December 25, fundus of pregnant horn at umbilicus; on ehand-breadth below, a round body, separated from the uterus by depression and becoming slender in a downward direction. Internal examination shows that the left tumor is the pregnant uterus, to which the enlarged, firm right horn is attached.

CASE II.—Patient 35 years old; menses absent three months; abdominal pain for six weeks. Has had five children and five abortions. Examination shows a soft vagina, an anteverted cervix, uterine body size of pregnancy of three months. Nothing further was noticed until after the patient aborted, when on examination the uterine body branched off to the right and the left a short distance above the cervix. No uniting band can be made out. The body toward the left, the larger, was the one that contained the ovum. The sound passes from the cervix as readily into one as the other.

Ruge, in a somewhat similar case of uterus septus where patient always aborted, divided the septum and thus assisted in bringing about a normal pregnancy. (*Zeitschrift für Geburtshülfe und Gynäkologie*, xvi., p. 19.)

93. Broome, George Wiley. *Uterus Bicornis; Pregnancy in Left Horn*.—At end of twelfth week from date of conception alarming hemorrhage per vaginam set in. A tumor in left hypogastrium. Extrauterine pregnancy suspected. Expectant treatment. Three and a half months after, a living child was born. Four and a half months later laparotomy was performed for well-defined swelling in left ovarian region. A cyst the size of a mandarin orange was enucleated from the

parovarium; at the same time a bicornate uterus was revealed. The patient left the hospital on the seventeenth day apparently well. Is again pregnant. (*Weekly Medical Review*, 1891, xxiii., p. 321.)

94. Benicke, F. *Uterus Didelphys, Vagina Duplex; Pregnancy*.—A primipara, 28 years old, with double vagina and uterus, was pregnant at term. The pregnant uterus gave the appearance of an ordinary pregnancy, being in the median line and apparently the only body of that kind in the pelvis. The septum, swollen and edematous, began just above the vaginal entrance, extending all the way up, dividing the vagina into two parts, one wider than the other. In the left vagina are a dilated cervix and fetal head. In the right vagina a softened, swollen cervix; its uterine body cannot be felt, but the sound enters it posteriorly about 11 centimetres. Pains were very weak and edema of septum increasing, also that of the other cervix. Labor was terminated with the forceps and followed by severe hemorrhage. While the patient was still under ether a careful examination showed that her uteri were entirely separate and distinct. The septum was entirely destroyed. Good recovery.

As the septum is usually destroyed during the labor, it is advisable to remove it with scissors, the descending head checking the hemorrhage.

Kussmaul collected 10 cases and Braun and Oldham 5 more in which the septum successfully withstood the strain of parturition. In one case it remained intact after seventeen labors. (*Zeitschrift für Geburtshülfe und Gynäkologie*, i., p. 366.)

95-99. Las Casas dos Santos. *Bicornate Uterus; Pregnancy*.—I. Patient 28 years old; aborted once at six months. Was sent to the hospital by midwife because bits of tissue passed away. Examination showed a wide vagina and a lacerated cervix which would admit two fingers. Fetal head to the right; to the left the finger enters a cavity connecting with a tumor the size of a fist, three finger-breadths above the external os, lying toward the left. This cavity discharges decidual fragments. On raising this tumor the head descended, membranes ruptured, and the labor terminated normally. During the labor both horns contracted simultaneously.

II. K., 26 years old; three times pregnant; labor twice at seven months, once at eight, occurring three and a half months ago. Patient has two cervices, each with its body, one to the

right and one to the left. The bodies are entirely separate, but between the cervixes there is a decided septum.

Ollivier.—Uterus and vagina double; in last confinement patient had eclampsia and died. Had been delivered normally four times previously and once with forceps. On section two uteri were found, separated by intestines. Left one best developed, right one normal but virginal; similar condition of cervixes. Adnexa normal both sides. The septum ended in a little fold, like the labia minora, projecting slightly beyond the vaginæ.

Le Fort, given by Ollivier.—Patient 25 years old; corresponded in every respect with his own.

F. Henderson observed his patient during seventeen years, and noted that there was during each pregnancy a hemorrhage from the non-pregnant horn lasting for eight days and recurring every three weeks until six weeks before labor. Her five labors were all normal. (*Zeitschrift für Geburtshülfe und Gynäkologie*, No. xiv., p. 140.)

100. Kleinwächter, L. *Uterus Bicornis; Repeated Pregnancy in Left Horn*.—Patient of 31 years, married nine years, gave birth to four children. Menses ceased four months ago; since then at irregular intervals she has had hemorrhages, both slight and severe, lasting from a few days to several weeks. Since the first cessation of menses she has suffered from pain in abdomen. Uterus size of pregnancy of six weeks, anteverted, lying toward the left; cervix large; at left top and side of fundus a tumor the size of a large walnut, continuous with the uterus and movable with it. No sulcus between the uterus and tumor. This tumor is tender on pressure and the seat of the pain of four months' duration. Fundus not broadened, right tube and ovary normal. Could not find these organs on the left side. Flow appeared in a few days, accompanied by severe pain, which suddenly ceased in the night with sensation of great relief. A fleshy mole was found in the vagina, but no trace of embryo. The tumor on uterus had disappeared; fundus seemed broader. Examination before discharge showed a uterus larger than normal, of firmer consistence than on first examination, with abnormal development of left horn, extending to left. Patient returned a year later with a similar history. Uterus was found generally enlarged, left horn larger than right, measuring to right 7 centimetres, to left 9 centimetres. Curette removed placental débris, mostly from left horn. (*Zeitschrift für Geburtshülfe und Gynäkologie*, Stuttgart, 1893, xxvi., p. 144.)

101. Senft, A. *Incarceration of Gravid Bicornate Uterus*.—May 31: Mrs. D., 31 years old, had menstruated since her fourteenth year. Menses absent since the beginning of February; had difficulty in passing urine. Pulse rapid, temperature 37° C.; abdomen swollen, especially right side. Bladder reaches two fingers above umbilicus; genitals red and swollen. After removal of urine a tense, elastic tumor, size of child's head, was found on right side, rising above the pelvis, quite immovable, cervix flexed, tumor compressing urethra. After drawing urine next day, tried to raise uterus. Could not enter through cervix with the sound, therefore punctured mass with trocar. June 5: During narcosis, passed sound readily into the uterus lying in front of the tumor, but it showed no connection with the tumor and was empty. Laparotomy for removal of tumor planned for the 8th. June 7: Severe pain in abdomen and back accompanied severe hemorrhage, with expulsion of fetus of three and a half months with its placenta. On examination it is now found that former tumor was the pregnant uterus, which can be explored by finger through the cervix. Death occurred on the tenth day from sepsis. The lochia could not flow off on account of the extreme flexion and immobility of the uterus. Autopsy showed bladder united with anterior horn of uterus bicornis. Posterior surface of anterior horn lying close to the pelvic tumor—*i.e.*, pregnant uterus—but not united to it. The gravid posterior horn somewhat flattened anteriorly, with rounded fundus, and absolutely immovable. (*Zeitschrift für Aarzt. Landpraxis, Frankfurt-a-M., 1893, xi., 313.*)

102. Knauss, K. *Uterus Bicornis, Vagina Duplex*.—Patient 31 years old; married ten years. Bore a child first year and another four years later, being attended by the same midwife, who noticed nothing unusual.

The two vaginæ each presented a ruptured hymen, the one on right being much roomier than the other; at end of each a cervix can be felt, the one on the left in the narrow vagina being small, round, and smooth. The cervix in the right vagina is larger and has an elliptical os, also some scar tissue in vaginal vault. Adnexa easily mapped out. Per rectum a broad cervix can be felt; sounds passing into each body diverge to right and left from cervices which are united. (*Med. Corresp. Blat. d. Würzb. Aarzt., 1894, xiv., p. 33.*)

103. Dittel, L. v. *Pregnancy in a Double Uterus*.—T. K., primipara, at term. Last menses April 15. Pelvis normal.

Examination showed two vaginae, separated in their whole length by a septum. The right vagina led to a cervix passable for finger tip. The cervix and os in left vagina were almost wholly dilated, child presenting by breech; in its descent it destroyed the septum.

Two weeks later the septum was only perfect between the cervices; the left puerperal uterus lay toward the left and was anteverted, the right uterus was about the size of a fig. The hand could pass in between the cervices. (*Centralblatt für Gynäkologie, Leipzig, 1894, xvi., 610.*)

104. Gardini, P. L. *Pregnancy in a Woman with Double Uterus and Vagina*.—Gardini reports a case in which the anomalous condition of the organs was discovered shortly before the beginning of labor. The feet of the fetus descended in the right vagina, while the nates attempted to descend into the left side, tearing the septum above. The septum, being very thick and resistant, offered an obstacle to delivery and was cut with scissors, after which the fetus was born, but was found to be anencephalic. The author goes on to a consideration of cases of uterus bilocularis, and, without dwelling upon the history, says that an Italian, Francesco Antonio Catti, in 1557, was the first to describe a double uterus. In the case described by Gardini the pelvis was not larger than normal. It is evident, he says, that the malformation has no special effect upon menstruation, unless there be atresia of one half of the vagina, in which case there would be retention of menstrual blood with formation of unilateral hematocolpos and hematometra. Menstruation is apt to be slightly more profuse than in normal cases. The anomaly has evidently no influence upon fecundation, for the patient under discussion was pregnant three times in six months, having aborted twice. As to pregnancy, patients with double uterus are very apt to miscarry or to have premature delivery, according to Dunning, Tarnier, and Vitanza, while Kussmaul, Kaltenbach, Müller, and Raineri consider that the condition rarely prevents pregnancy from going on to term. There are many cases on record of simultaneous pregnancy in both uteri. As to labor, while the author does not consider that a double uterus tends to produce vicious presentation, he holds that there is very frequently deficient energy in the contractions. This is not to be wondered at when we recall the fact that there is no true uterine fundus present to contract. The vaginal septum is very likely to prove an obstacle to delivery, and in fact is usually lacerated by the descending

fetus or has to be incised by the physician. In the case reported, placental delivery was normal; but this is not usually the case, for, as a rule, it has to be detached, either because it is adherent or because of hemorrhage from its partial or total insertion on the uterine septum, which, being scantily provided with muscular fibres, cannot contract enough for hemostasis. In the author's case the uterine septum had been ruptured by the fetus, the vaginal septum by the physician. Immediately after labor the patient was put under chloroform, the remains of the septum were cut away, surfaces of the vagina freshened and united by stitches in such a way as to make a new vagina of normal size. The patient is now practically in normal condition. (*Annali di Ost. e Gin.*, September, 1899.)

CASES OF PREGNANCY IN RUDIMENTARY HORN OF DOUBLE UTERI.

105. Serejnikoff, S. *Celiotomy for Pregnancy in the Rudimentary Horn of a Bicornate Uterus; Viable Fetus; Recovery.*—In the eighth month of pregnancy the patient was taken with severe pain over the upper part of the abdomen. This pain lasted for five days and was supposed to be caused by fetal movements. Her last menstruation was in June, 1896. The abdomen was irregularly enlarged, the greatest enlargement running from border of ribs on left side to right sacroiliac fossa. A small tumor could be felt on the left. Fetal parts were felt very distinctly, as if under the skin; fetal movements caused much pain. Cervix and uterine body were very much compressed, lying toward the left and front. Finger could be passed into the cervix and through its wall, which was much thinned; at this part the head was felt. The empty uterus measures 13 centimetres, contains a decidua, and has no communication with the fetal tumor.

January 23, the pain had greatly increased; there was nausea and vomiting, prostration, distension of abdomen.

February 11, abdominal section revealed serous fluid in peritoneal cavity and some vernix caseosa. The fetus was almost wholly expelled into the abdominal cavity, only its head and shoulders remaining in the fetal sac. It was removed alive. Left tube was thickened, left ovary normal. Left side of uterus normally developed; right side has at site of horn neither tube nor ligament. Fetal sac united with the right side of the uterus above the cervix. The sac rested between the folds of the right broad ligament. The anterior wall of the

fetal sac was free from adhesions. Posteriorly it was united to colon, rectum, and posterior surface of the uterus. Part of the fetal sac and attached placenta was removed; the remaining part was drained by incision into the vagina, packed with gauze, and its edges united. The abdominal wound was closed. On the fourth day a decidua was expelled into the vagina. Patient recovered. Child lived for six hours. It is remarkable in this case that the child should have remained alive for three weeks after the rupture of the uterine horn, which occurred without hemorrhage, and that impregnation occurred by emigration. (*St. Petersburger Monatschrift für Geburtshülfe und Gynäkologie*. viii., No. 3, p. 232.)

106. Holländer, E. *Pregnancy in a Uterus Accessorius; Abdominal Section; Recovery*.—A patient 33 years old had borne seven children and had three miscarriages. Menses were always normal. A severe fall caused an abortion of twins at four months. Since then she had irregular menses and pain in left side.

November 1 she had a scanty period after missing a month. November 9, severe flow with labor pains. Curettement on 14th only increased the flow without turning out any placental tissue. On entering the hospital, os was somewhat dilated, uterus anteverted, flanked on either side with tense tumors, evidently connected with uterus, leading to diagnosis of tubal-ovarian cyst of both sides. Laparotomy revealed three rounded bodies, one behind the other. The anterior one was the distended bladder, the posterior one a normal uterus with its adnexa; the middle body was a pregnant uterus without any indication of tubes, etc. Its contents were removed by fixing the fundus and entering per vaginam. The posterior retroverted uterus united with the uterus lying in front of it at the internal os. The anterior uterus was held in place by a ligament, a reduplication of the peritoneum covering the bladder.

Later examination showed the cervix to have two openings, one situated behind the other, separated by a bridge of tissue $1\frac{1}{2}$ centimetres thick. During the pregnancy this bridge was swollen and covered up the posterior os. The vagina contained no septum. The anterior uterus turned to the left, the posterior to the right. How was this uterus without tubes impregnated? (*Berliner Klinische Wochenschrift*. 1894, xxxi., p. 452.)

107. Landau. *Pregnancy in Rudimentary Horn of a Bicornate Uterus*.—Multipara, 23 years old. Menstruated painfully since twentieth year. On examination, a swelling the

size of a goose egg, but round, lay next to a small cervix whose uterine body was pressed up against the symphysis, but from its left edge a pedicle united it to the tumor. On laparotomy the swelling proved to be an enlarged uterus with solid muscular stem uniting it to an infantile uterus. This swelling ruptured during its removal, uncovering a fetus. The pedicle was solid. There must have been a migration of the spermatozoid. (*Centralblatt für Gynäkologie und Geburtshilfe*, No. 27, p. 208.)

108. Säger. *Pregnancy in the Rudimentary Horn of a Uterus Duplex*.—Säger presented a patient from whom he had removed, on October 2, 1882, a pregnant horn and its adnexa at the seventh month. Patient had borne two children previously. Menses two days after the operation, and a subsequent conception soon after reaching home. Conception only occurs in these cases when the second uterus or horn is amenorrhoeic—i.e., when the mucous membrane swells at each period, but does not discharge any blood. In this case the corpus luteum was in the right ovary and the pregnancy in the left horn. Hematometra, of course, excludes pregnancy. Whether both ovum and spermatozoa travel to opposite side is still a question.

Säger in this paper has collected 27 cases, in which 20 ended in rupture and death, 3 in formation of lithopedion; 4 were treated by laparotomy, as follows: 1. His own case, recovered. 2. Koeberlé (1864), Cesarean section twenty-two months after death of fetus; recovery. 3. Salin (1880), Porro operation; tedious recovery. 4. Litzman-Werth (1883 [?]), died.

Operation should take place as early as possible, between two and six months, to avoid rupture. At that time the pregnant horn should be removed to facilitate a normal delivery at a future time.

The regressive metamorphosis of the fetus in Säger's case was most remarkable. There was no trace of putrefaction. (*Centralblatt für Gynäkologie und Geburtshilfe*, 1883, p. 324.)

109. Winter. *Uterus Bicornis; Pregnancy in Rudimentary Horn*.—April, 1892, specimen of pregnancy in a closed rudimentary horn which had been removed by operation on account of rupture. Z. S., 25 years old. Normal delivery two and a half years ago. Last period November 24; well until four weeks ago, when she felt abdominal pain, especially on left side, which increased until one week ago, when peritonitic

symptoms with hemorrhage set in. Examination showed the uterus to be somewhat enlarged and turned toward the right. At its left was a tumor the size of a child's head, from the lower part of which a pedicle could be traced passing over to the uterus.

Laparotomy showed that the tumor had ruptured, that its outer edge was formed by the fetal membranes and loops of intestines, all being covered by a yellow pseudo-membrane. In the pelvic cavity was a dead fetus and some brownish, bloody fluid, but no blood. Fetus not macerated, but discolored. The placenta was still attached in the muscular body, the size of an ordinary uterus. This body was ruptured posteriorly and toward the left. The pedicle was an inch thick and attached this horn to the left border of the uterus. Adnexa for each side. The wall of the horn was thickest near the uterus, thinning as the distance increased, until at the site of rupture it was as thin as paper. The rudimentary horn was entirely closed toward the uterus; not the smallest communication could be discovered. Corpus luteum was in opposite ovary to pregnant horn.

Winter also showed a specimen from the Universitätsfrauenklinik of a pregnancy in a rudimentary horn with extreme thinning, and distension had taken place laterally and posteriorly. Tumor had reached the size of an apple. This horn was perfectly occluded. There had been no rupture, but death of the fetus with subsequent maceration. Age of fetus was about three months. (*Centralblatt für Gynäkologie und Geburtshülfe*, 1892, p. 363.)

110. Wiener. *Pregnancy in the Rudimentary Horn of a Bicornate Uterus*.—Gives history where at end of second pregnancy severe pains supervened, lasting some time, with discharge of bloody mucus. An extrauterine pregnancy was diagnosed, but on abdominal section it turned out to be a pregnancy of the right side of a uterus bicornis. (*Archiv. für Gynäkologie*, xxiv., p. 332.)

111. Netzel, W. (Stockholm). *Pregnancy in a Rudimentary Horn with Imperforate Cervix*.—Patient 23 years old; menstruated since her fifteenth year and has been married two years. Last menses in June. In August a two months' pregnancy was diagnosed, with cyst of the vagina the size of a goose egg. In December she discharged thick, yellow, offensive pus; disappearance of tumor. In January the discharge became red and fetid, followed by fetid mass the size of a hand, without any pain or hemorrhage. In February life ceased.

but no labor pain. Came under observation June 10, 1885. Tumor, size of a man's head, in pelvis close to uterus at the left, into which a sound passes 7 centimetres. July 15, laparotomy. Tumor without a pedicle; one was formed by passing elastic sling about its base; was easily enucleated and found to contain a macerated fetus.

This pregnancy occurred in an occluded right horn; the corpus luteum was in the left ovary. Whether there had ever been a communication it was impossible to determine; it must have been, if at all, very minute. (*Centralblatt für Geburtshilfe und Gynäkologie*, No. 27, p. 439, 1886.)

112. Ruge, Carl. *Bicornate Uterus with Pregnancy in a Rudimentary Horn with Solid Cervix*.—Simon, of Quedlinburg, sent the specimen, obtained from a patient who died of internal hemorrhage October 27.

Much blood was found in the pelvic cavity and there was a rupture of the right horn of a uterus bicornis. Vagina was quite wide; the cervix slender, with poor development of anterior lip; os dilated, filled with mucous plug. Cervix, 4 centimetres long, communicated with a dilated uterine cavity 6 centimetres in length, with thickness of wall from 1 to 1.4 centimetres. Left horn was the size of a pregnancy of two months; left ovary contained a corpus luteum. The right horn arose from near the internal os, extending toward the right at an angle of 60°. The uniting pedicle has a breadth of $\frac{3}{4}$ inch and a thickness of $\frac{1}{2}$ inch. This connecting bridge corresponds to the cervix of the right horn; is perfectly solid. Even microscopical sections proved this. The uterine body measures 6 centimetres in width and 7 centimetres in length. Its walls are profusely covered with blood vessels and have a thickness of 0.9 to 1.0 centimetre, diminishing toward the fundus, where they are no thicker than paper and are ruptured. Tube and ovary of this side normal, but the right ovary contains no corpus luteum. The fetus is of about three months and its placenta protruded from the rupture. (*Zeitschrift für Geburtshilfe und Gynäkologie*, ii., p. 27.)

A study of the 112 cases recorded above leads to the following conclusions:

I. *Double Uterus or Vagina uncomplicated by Retention Accidents or Pregnancy*.—Women the subjects of this malformation do not necessarily show any other peculiarity dependent on imperfect development.

The condition is usually accidentally discovered on examination as to the cause of dysmenorrhea or menorrhagia from which these women frequently suffer.

Menstruation may occur from both sides simultaneously, or may alternate on right and left.

Menstruation is scanty when both horns are poorly developed, but amenorrhea is exceptional when there is any endometrium present.

Uterus septus is probably the most common malformation, but uterus bicornis is most often recognized.

Double vagina is easily overlooked in many instances, and has remained undiscovered even after many years of married life.

When the vagina is double the right one is usually the smaller, and the right uterine horn is more frequently the less well developed.

Uterus septus is usually discovered by accident during a curetting or examination with a sound. In markedly bicornate uteri, or where there is a double cervix or cervical opening, careful bimanual examination is sufficient for a diagnosis.

In cases where a vaginal septum is recognized, it is probably best, unless the vaginæ are both well developed, to incise it, as, in case of subsequent pregnancy, it is apt to prove an obstacle to delivery.

II. *Retention Accidents*.—Some curious as well as instructive facts may be gleaned from the records of the 32 cases that we have collected. It will be noted that in a large proportion of the cases of double uterus or vagina the less well developed side is the right. Thus, in 26 of the cases with menstrual retention where the side affected is mentioned, we have 18 right-sided, 6 left-sided, and 2 bilateral. Nearly all of the cases have occurred in young women, and have been brought to notice by unusual and increasing pain and discomfort referred to the lower abdomen, vagina, and rectum, accompanied by a slowly growing pelvic or abdominal swelling. Where from any cause the contents of the tumor have become infected, we have in addition marked depreciation of the general condition, often a fetid or purulent discharge, and the usual symptoms of a septic process. A vaginal examination reveals a more or less distinctly fluctuating tumor to one side of the vagina or in the pelvic cavity. The condition is a serious one, always demands surgical interference, and, while rare, occurs frequently enough to make it necessary that we should not forget its possibility.

Of 11 deaths here recorded, 9 occurred from septic peritonitis after puncture of the sac. In several of these cases autopsy showed the intra-abdominal rupture of a tubal blood cyst. Cases more recently treated have recovered. The lesson here surely is to first be as certain as possible of the condition present, then, under strict asepsis, to evacuate the contents of the retention cyst through the vagina by a wide incision, and to wash out the cavity with hot normal salt solution, keep the patient quiet in bed, and on evidence of any peritoneal infection to open the abdomen and remove the ruptured tube that will probably be found.

III. and IV. *Pregnancy in Double Uteri*.—It is evident that fecundity is not materially diminished in individuals with double uterus.

Both sides of the uterus may be pregnant at the same time, with the fetus in each at the same or a different period of development. The occurrence of a double pregnancy of different periods in a uterus septus probably explains the so-called cases of superfetation.

In repeated pregnancies where both horns are equally well developed, the two uteri frequently alternate in function.

Abortion is more common than in normal uteri, and is particularly frequent in uterus septus.

If the pregnant horn is well developed the pregnancy will usually end as in a normal uterus; if poorly developed, there is danger of rupture during or before labor, of irregular presentation from encroachment of the other horn on the pelvic space, of abnormal insertion of the placenta, and of inefficient uterine contractions—conditions which may make the artificial delivery of the child and placenta necessary. Where there is a vaginal septum that obstructs labor it should be incised, if recognized.

If the pregnant horn is rudimentary in its development there is always present the danger of rupture; delivery per vaginam will be impossible, and it is always right to remove the pregnant horn together with its ovary and tube by abdominal section as soon as the condition is definitely ascertained. Pregnancy in a rudimentary horn is most often mistaken for an extrauterine pregnancy, but, as it demands the same treatment, the mistake can be pardoned. The most important differential point is the demonstration of a deep sulcus between the fundus of the uterus and the pregnant mass.

The mortality of pregnancy in a rudimentary horn, as given

by three authors (Sänger, Himmelfarb, and Stoll) who have most carefully investigated the subject, ranges from 88.8 per cent to 86.9 per cent, the patients all dying from rupture and the consequent hemorrhage.

An interesting question is, How do many of these cases become pregnant? Himmelfarb found that the cervical pedicle of the pregnant rudimentary horn was solid in 19 of 27 cases, and Stoll found the same condition present in 7 of 14 cases collected by him. In only one of these cases is there any record of more than a macroscopic examination. In the case that I have recorded the pedicle was apparently perfectly solid, and it was only after a careful microscopical examination of numerous sections from various portions of the pedicle that it was demonstrated that a canal the size of a bristle, with plicated lining covered by columnar epithelium, did pass into the pregnant horn.

The explanation given in nearly all of these cases, that the pregnancy was the result of emigration of the sperm cells through the other uterus and tube across the peritoneal cavity and into the tube of the rudimentary side, certainly seems incredible except as a rare accident. Again, if the cervical canals of these uteri were impervious previous to their impregnation, why did they not all form retention cysts? It is certainly probable that in nearly all a minute cervical canal was open at the time of impregnation.

I am indebted to Drs. A. Raymond Schroeder and Anna Hilke for aid in searching the literature at my disposal at the New York Academy of Medicine.

71 WEST FORTY-FIFTH STREET.

CORRESPONDENCE.

A NEW METHOD OF OPERATING FOR COMPLETE TEAR OF THE FEMALE PERINEUM.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—Some weeks past, while reading the culled extracts from various medical journals in the *Philadelphia Medical Journal*, my eye fell upon an article (condensed for publication in this *Journal*) read by Dr. Howard A. Kelly before the Amer-

ican Gynecological Society on May 24, 1899, in which he describes a new operation or procedure for repair of complete laceration of the perineum. I have not had the pleasure of reading Dr. Kelly's paper, but from the description given by the *Philadelphia Medical Journal* I was sure I had performed the same operation more than two years before Dr. Kelly read his paper. As some of my medical friends had heard me speak of this operation, the Knox County Medical Society requested me to write an essay on this subject, which I did, and read the same before the society on May 11, 1899.

On December 12, 1899, I addressed a letter as follows:

KNOXVILLE, TENN., December 12, 1899.

Dr. Howard A. Kelly, Baltimore, Md.

DEAR DOCTOR:—My attention was called to an article of yours which the *Philadelphia Medical Journal* of September 16, 1899, attributes to the *Medical News* of September 9 issue, and refers to the *Philadelphia Medical Journal* of June 3, page 1201; here a very brief synopsis of the operation for complete tear of the perineum is given. I am of the opinion your procedure is exactly that which I have followed for the past two and a half years, and as evidence of this fact I enclose sections of a paper read by the undersigned before the Knox County Medical Society, May 11, 1899.

Very respectfully, etc.,

C. E. RISTINE.

I enclosed with this letter five or six paragraphs from my paper and a section of the minutes of the society for that date, duly signed by the president and secretary, which referred to my paper. Dr. Kelly replied as follows:

1418 EUTAW PLACE.

DEAR DR. RISTINE:—I am deeply interested in your letter which shows that you have been using the same procedure for closing complete tears as that recently described by myself. A paper from you giving date of your communication and details of your case would be of great value; I advise you to prepare one stating such facts as you have given me and to publish it in *THE AMERICAN JOURNAL OF OBSTETRICS*.

I add to the turning down of the apron these important steps:

1. A dissection and liberation of the sphincter ends, which are then united by buried catgut sutures and a deep silkworm-gut suture transfixing the muscle twice.

2. The use of figure-of-eight buried catgut sutures in the septum to avoid any dead space.

If possible illustrate your article.

Use this note in any way you desire.

Very sincerely yours,

HOWARD A. KELLY.

Appreciating the kind request of Dr. Kelly to prepare a paper for publication giving details of my cases, I have concluded to publish only that part of my paper which refers to the special operative procedure for *complete* tear of the perineum:

“The operation I perform for complete tear of the perineum I consider unique, and, as far as results can speak, it is as near perfect as possible. I have made three operations within the last two years for complete tear of the perineum. The length of time between the tear and repair was respectively eight, sixteen, and seventeen years. My first patient, C., age 43, date of operation February, 20, 1897; second, B., age 39, date of operation July 9, 1897; and third, S., age 50, date of operation December 7, 1898.

“C. had been operated upon twice, B. had had three efforts made to restore the parts, and S. had never submitted to operation, though frequently urged to do so. My operative procedure was practically the same in each case. Beginning high in the vagina, I dissect up a frill of mucous and cicatricial tissue to the margin of the rectal tear, but do not disturb its connection here, as the frill, when released from its central and lateral attachments, is inverted into the rectum, thereby forming the anterior wall of this organ.

“If the tear extend up the vagina into one or both sulci, I begin the incision of the mucous membrane above the apex of said vaginal tear, correctly measuring the distance, that I may have abundance of tissue, so that the liberated frill, when inverted into the rectum, will reach below the margin of the anus. From this initial point I direct my incisions laterally outward and downward to points I have selected for the lower border of the future vagina and upper of the perineum (see incision outline, Fig. 1), extending my incision down from this point on a line with the torn edge of the perineum to the outside of the pits marking the retracted ends of the sphincter ani muscle.

“Following the outline incision, I begin denuding from the highest point in the vagina and carefully dissect down to the apex of the rectal tear, and laterally from the incisions down to the margin of the rectal tear. These lateral dissections expose the ends of the retracted sphincter muscle. Now invert the frill into the rectum, draw well down below the anal orifice by traction with tissue forceps. While in this position freshen and draw out the ends of the sphincter muscle, through which

pass a chromicized catgut suture near its ends; gentle traction on this suture approximates but will not place the ends in apposition. Now, while the traction is continued, pass a silk-worm-gut suture through skin and muscle; taking a more secure hold of the muscle, bury deep in the pelvic tissue,

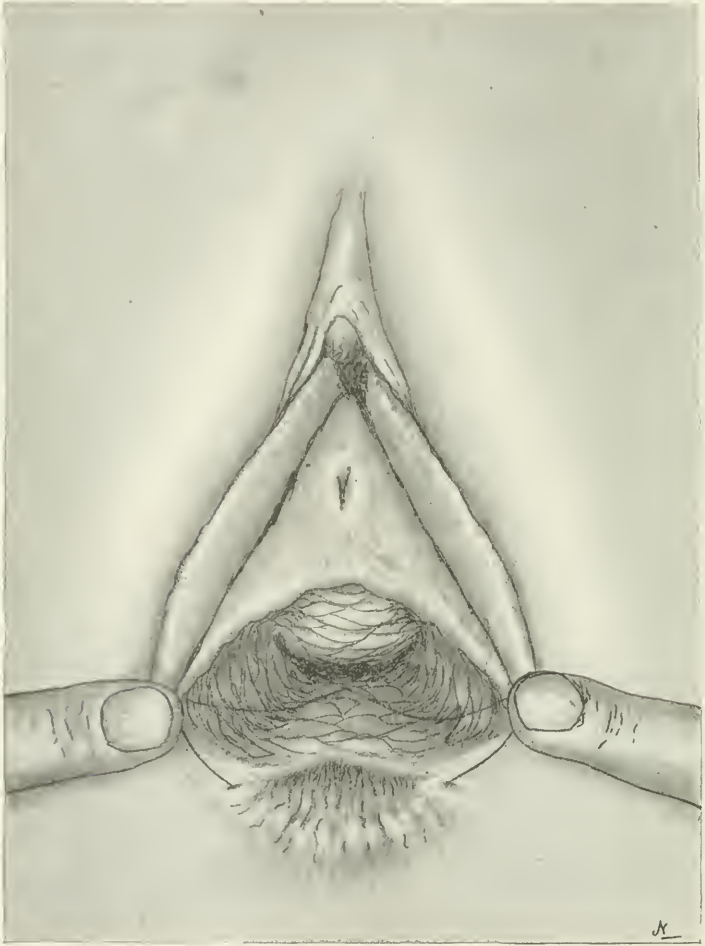


FIG. 1.—Showing outline of incision.

emerging at a corresponding point on the opposite side, passing through like structures (see Fig. 2).

“ These sutures passed first are tied last.

“ The remaining steps in the operation are simple and correspond with that described for incomplete laceration, as we now

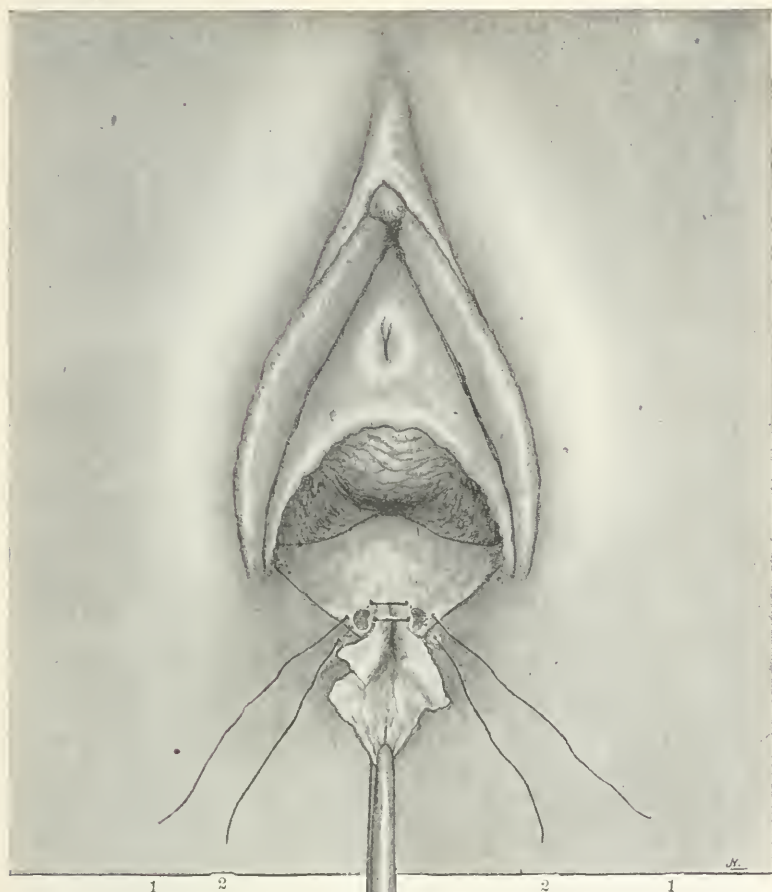


FIG. 2.—Flap dissected off and turned down into rectum. 1,1, Catgut suture passed through sphincter ends, 2,2, Silkworm-gut reinforcing suture passed deeper through tissue of sphincter muscle.

have practically transformed a complete into an incomplete tear (Fig. 3).

"The advantage of this operation is, first, the rectum is shut off completely from the denuded area by the inverted frill with its mucous and cicatricial sur-

face forming the anterior wall of the rectum, giving us an unbroken rectal mucous lining; second, there are no stitches in the rectum to carry infection or require removal; third, the frill supplies tissue to the rectum that has been destroyed by sloughing, retraction, and atrophy; and, fourth, I have no failure to record, each patient expressing great satisfaction at the result.

“In my first operation I used silkworm gut and silver wire for sutures, which tore out on the third day; on the next following day I removed all stitches, freshened the denuded area with a sharp curette, reintroduced sutures, vaginal of catgut

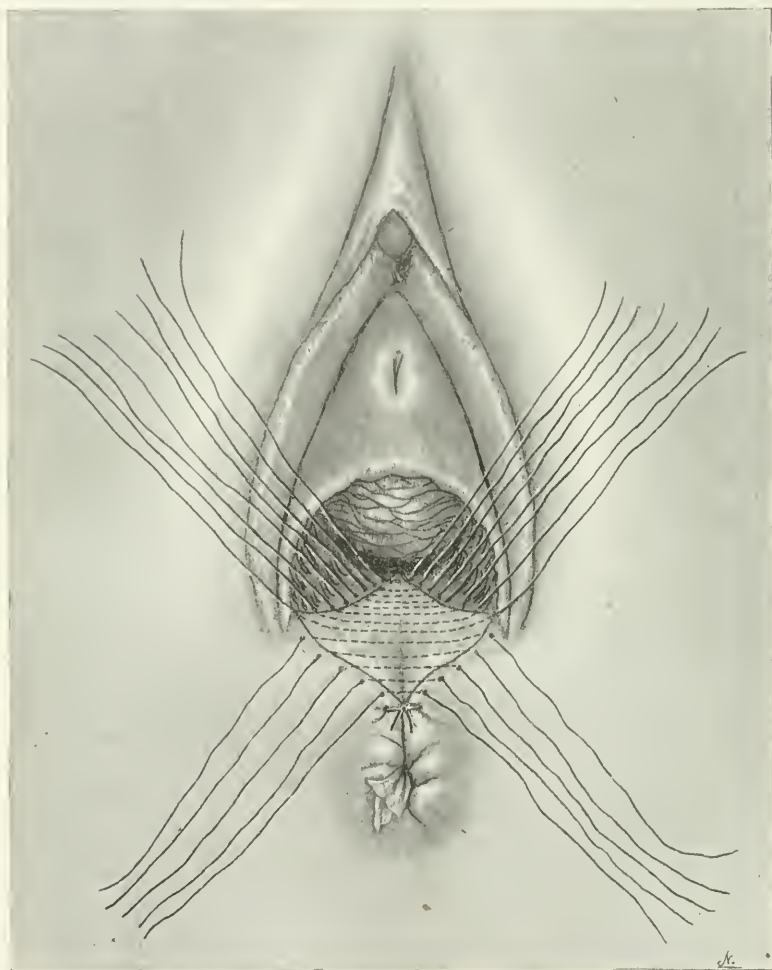


FIG. 3—Reinforcing sphincter suture tied and other sutures in place.

and silkworm gut for the recto-perineal, with satisfactory result.

“I do not use a pad or other dressing over the external sutured area. The nurse is instructed to throw a stream of bichloride solution, 1:2000 or 1:3000, over the vaginal lips after urina-

tion, whether the act be accomplished with or without the aid of a catheter. After the third day a vaginal douche is given of some mild antiseptic, such as normal salt solution or a solution of boric acid.

“As soon after the operation as the patient’s stomach will tolerate it, I order the administration of a tablespoonful of compound licorice powder in half a tumbler of water, and repeat often enough to insure at least two soft, free actions from the bowels every twenty-four hours. I limit the diet to such articles as furnish the smallest amount of fecal matter, but permit these to be taken in a quantity to satisfy the appetite.

“If this operation for complete tear of the perineum is not original, I beg to be informed of the one who can lay claim to it. I have not found such procedure mentioned in all my reading, and this at least makes it original with me.”

Addenda.—Begin high in the vagina, corresponding to the length of tear in the rectal wall.

Be sure you have enough of frill to extend below the anal suture, both from above and laterally; excess of tissue may form a tab or teat, which can be clipped off after the patient is well.

Do not worry about having too much tissue folded into the rectum; this will take care of itself. You will be surprised how rapidly absorption of the excess takes place, with restoration of a perfect rectal and anal wall.

Complete control over the sphincter muscle will not be obtained for some weeks or months after the operation, depending upon the amount of atrophy present in the unused sphincter muscle, which, as a rule, is *pari passu* with the time elapsed between tear and repair.

C. E. RISTINE, M.D.

KNOXVILLE, TENN.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, January 18, 1900.

The Chairman, JOHN B. SHOBER, M.D., presiding.

DR. CHARLES P. NOBLE read a paper entitled

A CASE OF NEPHRECTOMY FOR PYONEPHROSIS FROM STONE.¹

DR. SHOBER.—I would like to ask Dr. Noble whether, if the diagnosis had been made before extensive destruction of the kidney occurred, the woman could not have been relieved without nephrectomy.

DR. NOBLE (closes).—There is no question but that, if the diagnosis had been made before the kidney was destroyed by suppuration, simple nephrotomy would have been sufficient to remove the stone, and the patient would have recovered with a good kidney.

DR. E. P. DAVIS read a paper entitled

THE PERNICIOUS NAUSEA AND VOMITING OF PREGNANCY,
WITH THE REPORT OF A CASE.²

DR. R. C. NORRIS.—To any one practising obstetrics these cases are of exceeding interest. Within the past year I have seen three fatal cases of pernicious nausea and vomiting of pregnancy in consultation. These three patients died before there was an opportunity to terminate pregnancy. I think men who see cases advanced to an extreme degree of starvation and grave blood changes realize the importance of promptly treating them as Dr. Davis treated his patient.

I have been impressed, in some of the cases, by the fact that a neurotic element is the most prominent etiological factor. Of course, where a careful and early analysis of the blood shows serious changes, we must exclude hysteria as the primary cause and consider toxemia the important cause. I have had some patients with this neurotic element respond very rapidly to isolation and a modified rest treatment.

The curious part of the cases presumably due to a toxemia is that they should manifest such profound changes so early in the pregnancy, as in the case of Dr. Davis. When the vomiting has persisted for weeks, the blood changes and the serious condition of the patient can be accounted for by the starvation that has ensued, but the very early and serious changes in the

¹ See original article, p. 308.

² See original article, p. 304.

blood would indicate that the toxemia is a factor more important than uterine displacement or changes in the cervix; at least, I have been so impressed with the aggravated cases, and believe that we should terminate pregnancy as promptly as for a grave toxemia of pregnancy manifesting itself as kidney insufficiency. We know very little of how the various toxins act upon the economy. Some appear to act by deranging the function of the kidney, others affect the liver, while others seem to attack the nervous system or the circulation. It is reasonable to believe that under some conditions the stomach or vomiting centre is especially affected. I have recently had an interesting and fatal case of toxemia in a patient who came under my observation during the first stage of labor. She was naturally delivered, but immediately afterward fell into a condition of shock and heart failure which alarmed me and gave me great apprehension of internal bleeding. Death ensued eighteen hours after delivery, and a careful autopsy by Dr. Sailer could find no adequate explanation of her death. The kidneys showed some inflammatory change. No other lesion was found. The results from cultures made by Dr. Sailer are not yet known. We agreed that the manner of her death warranted the belief that a toxemia, fulminating in character, had overpowered her cardio-vascular system. There were no convulsions that come in eclampsia, the usual manifestation of a toxemia sufficiently grave to destroy life. In most cases of the nausea and vomiting of pregnancy we know that the symptoms frequently improve after the fourth month, and if we can consistently carry our patient along until that time we may expect relief in a large proportion of cases. If, however, an analysis of the blood and urine reveals serious changes, and if really serious symptoms manifest themselves, it matters not how early, the general practitioner should realize that no medicines can give relief in such cases and that the termination of the pregnancy is the patient's only hope. He should also remember not to send for his consultant when the patient is dying from starvation and when it is too late to save her by ending her pregnancy. Remembering that these cases may be neurotic or toxic, as well as due to local pelvic conditions, we have the treatment pretty well in hand if the patient is seen sufficiently early. Not long ago we looked upon pelvic disorders as the most important cause of excessive vomiting and nausea of pregnancy. Doubtless many cures following applications, pessaries, dilatation of the cervix, and the like, have been the result of "suggestive therapeutics" in neurotic cases. Dr. Davis' paper shows the necessity for early and critical examination to estimate the gravity of the patient's condition, and shows also the value of prompt and bold treatment. Cases due to uterine displacement or of neurotic origin are amenable to treatment indicated in individual cases, and may not require the termination of pregnancy. Those cases which appear to be due to toxemia are especially dangerous, and in the early stages should be dealt with bravely and boldly by terminating

the pregnancy. Cases due to other causes should not be allowed to progress to the stage where grave alterations in the blood appear.

DR. CHARLES P. NOBLE.—With increasing experience I think that all of us have more respect for these patients. Recently I had a shocking experience in reference to one of these cases. I was called in to see a young woman, illegitimately pregnant, and as she had a good pulse, and evidences of nausea were not marked, and the symptoms had not persisted over a lengthy period, and as, moreover, she had not been treated systematically and had not been fed by the bowel, I felt that the case was not in a critical condition. Yet she died within twenty-four hours after my visit—showing how easy it is to be deceived as to the seriousness of the condition of these patients.

I have seen a number of cases within the last few years die from pernicious vomiting of pregnancy, some without the uterus emptied and others because the uterus was emptied too late.

I am entirely in accord with the scope of the paper of the evening, and think that these are the lines upon which these cases should be studied, and that when the evidences of profound alterations in the blood or kidneys are to be made out we should not hesitate to promptly empty the uterus.

I have also had a number of cases to illustrate the point made by Dr. Norris, that in the cases occurring in highly neurotic women the influence of the sympathy of the family is oftentimes a marked factor in keeping up the nausea, and that if we can keep the family away from the patient it will do more good than any one other measure of treatment.

DR. GEORGE M. BOYD.—I have had a case within the last three months illustrating Dr. Noble's remarks in regard to the neurotic element in some cases of pernicious vomiting of pregnancy. The patient was a little less than three months pregnant. She vomited incessantly until she arrived at the hospital. On careful diet, bowel feeding for a time, and hot douches, the vomiting ceased. The only medication we used was a weak solution of cocaine, one-tenth of a grain three or four times daily.

The only case in which I found it essential to empty the uterus I saw in consultation four or five years ago, and in that case there did exist excessive anemia, which had existed prior to pregnancy. It seemed to me that the probable cause of vomiting was the patient's anemic condition. Her blood was exceedingly thin and low in red blood count. With the emptying of the uterus the symptoms disappeared and the patient recovered.

In spite of the fact that it is at times essential to empty the uterus, I would like to mention the fact that the symptoms, vomiting particularly, are exaggerated in some cases, apparently for the purpose of bringing about the emptying of the uterus, hoping that the physician will feel that it is necessary to terminate pregnancy. I can recall two or three such cases, where, with careful supervision of the patient and slight medi-

cation, there was a gradual improvement and the desired result was not accomplished.

DR. DAVIS (closing).—I quite agree with Dr. Norris in the importance which he gives to the toxemic element in these cases. This was well illustrated by a patient coming under my observation last summer. She was in her first pregnancy and suffered much with nausea and vomiting. Her attending physician became so alarmed about her that he proposed to empty the uterus. This was declined, and the patient was seen by Dr. Stricker Coles, who advised her removal to the Jefferson Hospital. She had a considerable elevation of temperature and was thought to have enteric infection, typhoidal in character. This diagnosis was not confirmed by further observation, and the patient's symptoms disappeared after the intestinal canal had been thoroughly emptied. She was kept under observation and found to be in a highly anemic condition. She was recently delivered of a healthy child in spontaneous labor. The prolonged observation which this patient received leaves no doubt but that her symptoms were the result of toxemia of intestinal origin.

Cases are sometimes seen in which sudden death occurs either during or after labor with symptoms pointing to a severe injury of the genital tract. Some years ago I was called to a patient hurriedly who had been delivered with some difficulty by the use of forceps. During the delivery sudden collapse occurred, and the physician in attendance feared that the lower portion of the womb had been torn by the descent of the shoulders. An autopsy revealed the womb uninjured, but that death had occurred from toxemia with extensive degenerative changes in the excretory organs. This patient escaped eclampsia, and her condition had given practically no warning of its presence.

The pernicious nausea of pregnancy may simulate so closely the disease of the gastro-intestinal tract as to deceive experienced observers. A case under treatment by several medical men of experience had been diagnosticated chronic gastro-enteritis. A vaginal examination was finally made, when I was able to make a positive diagnosis of early pregnancy with retroflexion of the womb. The pregnancy was illegitimate and the patient died.

In a recent case of ectopic gestation which came to operation the patient suffered severely from the pernicious nausea and vomiting of pregnancy. This first attracted the attention of the attending physician and led him to fear ectopic pregnancy, although the patient especially denied the possibility of gestation. The complication of nausea in ectopic gestation is a rare one.

To those who may have occasion to operate upon these cases, chloroform and oxygen will prove, I think, a most useful anesthetic. Dr. Taylor administered this combination most skilfully, and was able to relax the cervix by carrying the anesthesia to a complete extent, at the same time giving the patient but little depression.

Dr. Noble has spoken regarding the influence of solicitous relatives in these cases. This was recently illustrated by a patient surrounded by parents and friends, who were urging her to take beef tea and other forms of nourishment almost constantly. The patient was retaining practically nothing. She was sent away at once; in a few days was able to take quite a journey during a rainstorm and to eat a comfortable supper afterward. The entire change in her surroundings and freedom from irritation was followed by a rapid recovery.

We must all have seen cases like those described by Dr. Boyd, in which a pregnant woman desiring to end the pregnancy simulates nausea through frequent vomiting. These cases are sometimes very deceptive, and in some of them the attending physician has been persuaded by the patient to suggest that the pregnancy be ended, while a consultant is brought in simply to accomplish the patient's desires.

In my paper the endeavor was made to show that vomiting is a symptom of little importance in comparison with the constant and distressing nausea which the physician sees in these cases. A person may simulate nausea by vomiting, but it seems to me almost impossible for any patient to be profoundly nauseated almost constantly without giving positive evidence of her condition. A similar state is seen in some seasick persons who have no emesis and still suffer extremely from persistent nausea. It would be better, I think, were the term "vomiting" omitted from the title used in text books to describe this subject and were the word "nausea" allowed to remain alone.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY.

Stated Meeting, January 16, 1900.

The President, JOSEPH E. JANVRIN, M.D., in the Chair.

HYSTERECTOMY FOR EPITHELIOMA OF THE CERVIX.

DR. PAUL F. MUNDÉ.—The first specimen is a uterus which I removed a week ago last Saturday for epithelioma of the cervix. The patient is 23 years of age, has been married four years and has no children. Occasional bleeding had occurred for four weeks prior to my seeing her. I made an examination, which revealed a tumor which entirely filled the vagina, so that it was impossible to determine how much of the uterus or perimetrium was involved. I therefore decided that it would be best to remove the growth with the galvano-cautery and then decide whether it would be justifiable to remove the uterus. The family wishing a consultation, I called in Dr. Janvrin

to give his opinion at the time of operation. The epithelioma was very easily removed with the galvano-cautery wire. Both Dr. Janvrin and I agreed that the uterus was perfectly free and that it would be wise to proceed with its removal. This was done, the bladder being pushed aside, Douglas' pouch opened, the broad ligaments clamped, and the uterus cut away. No ligatures or sutures were used. The woman has made a perfect recovery, the temperature at no time reaching more than a fraction above 100°. Whether or not the disease will return I cannot say. Apparently all diseased tissue was removed. The specimen is a very pretty one. The epithelioma was attached to the whole of the cervix. The interior of the uterus is healthy. The ovaries were healthy and were not removed.

Recently there was a discussion at a meeting of the New York County Medical Society in which I expressed my deprecation of the operation of hysterectomy for cancer. I took the ground that it is only when the uterus is perfectly free, and the case seen early enough for us to be sure that the disease is confined to the uterus itself, that hysterectomy is justifiable, and that otherwise it is not justifiable to subject a patient to the operation, because the disease will probably return at a point from which it has not been entirely eradicated. Our friend Dr. Wylie then took a stand very favorable to the operation, and claimed that he could cure and had cured many such cases by hysterectomy. I regret that I cannot agree with him. Since then, however, I have seen two cases of cancer of the uterus in which I think hysterectomy justifiable, one of which is the case now reported. The other was that of the wife of an Albany physician, who came to New York to get an opinion as to her condition and was seen by Dr. Polk and myself. When I found that she had a hard, firm, nodular cervix, with no bleeding from the cervix but from the uterine cavity, and that she was a woman 52 years of age and had long passed the menopause, I gave the opinion that it was a case of malignant disease of the uterus. In this opinion, I was told, Dr. Polk concurred, and a microscopical examination of the uterine scrapings confirmed our diagnosis. I advised immediate operation, and presume that this has already been done by Dr. Vander Veer, of Albany, who had referred her to me. In this case I think that hysterectomy will result in cure, but such cases are exceptional.

OVARIAN ABSCESS.

DR. MUNDÉ.—The second specimen is an ovarian abscess removed from a woman who came to the hospital with a diagnosis of lacerated cervix and perineum. Upon examination I found behind the uterus in Douglas' pouch a hard tumor the size of an orange, which was tender upon pressure, and which seemed to be attached to the posterior surface of the uterus. I thought it was a pedunculated fibroid of the uterus. The woman said that she had had a very hard labor, and I thought it

probable that this tumor had formed an obstruction to the birth of the child. In order that this might not occur at a future labor, I decided to remove it before operation upon the cervix and perineum. Vaginal section was performed, but when I seized the tumor with volsella forceps pus oozed out. I was mistaken in my diagnosis, for it proved to be an abscess of the ovary, or, perhaps, a dermoid which had undergone degeneration. I removed it and closed the laceration of the cervix, purposely leaving the laceration of the perineum to be closed at some future date, fearing that drainage from above might interfere with its union.

OVARIAN ABSCESS AND RUPTURED TUBAL PREGNANCY.

DR. MUNDÉ.—The third specimen is a double one. A single woman, 35 years of age, was admitted to the medical side of the hospital, and, as she had a temperature which could not be referred to any but the pelvic organs, I was asked to see her. Upon examination I found a tumor of the ovary, about the size of an orange, in Douglas' pouch. I aspirated, which was a rather risky procedure, as the tumor was not adherent, and the patient's temperature immediately went up to 104° F. A diagnosis of ovarian abscess was made. As the appendages on the opposite side were somewhat enlarged, I decided to open the abdomen instead of removing the abscess per vaginam; and it is well I did so, for upon the opposite side I found an unsuspected tubal abortion, which was removed. The condition was entirely unexpected, for the woman gave no history pointing to it, made false statements as to her last menstruation, and denied sexual intercourse.

Tubal abortion seems to me to be of much more common occurrence than is generally supposed, and this accounts for the numerous cases of ectopic gestation which we see in which hemorrhage goes on slowly and in which no acute symptoms appear. There are certain physical signs, but they are not so imperative as those which occur in cases in which rupture has taken place. Ectopic gestation is not at all rare—personally, I have seen nine cases since the first of October. Four of them were operated upon by abdominal section and five by the vaginal route. In cases in which there is hematocele or encysted blood, which can be felt bulging into the vagina, I operate from below. In the four cases operated upon from above, the specimens were similar to the one in this case, viz., tubal abortion. In one of the cases I opened a hematocele from below, drained, and packed. A week or so later a tumor in the abdomen developed and I was obliged to perform a laparotomy, and found an oozing, which had not been controlled, occurred since the first operation. The patient made a good recovery.

DR. CLEMENT CLEVELAND.—The first case is very interesting and reminds me of a similar one seen by me some eight or nine years ago. The patient was a woman 60 years of

age, who had been bleeding for months and was pretty well blanched. Upon examination I found a cauliflower growth which so filled the vagina that I could not reach the cervix. I decided that something must be done at once and that removal of the uterus might perhaps be necessary. On the following day I removed the mass and then found that the cervix was involved. I therefore removed the uterus. The patient made a good recovery and lived more than five years without a recurrence. The disease then returned and she died within a year.

Dr. Mundé speaks of his objection to hysterectomy for cancer of the cervix. I am in favor of the operation in cases in which the disease does not extend up into the broad ligaments, for I have seen good results follow it. I would operate even if it were but to prolong the woman's life a year or so, as it certainly does in many cases. In another case of epithelioma of the cervix, that of a woman 62 years of age who had been seen by several surgeons who advised against operation, I removed the uterus seven years ago and she is now in perfect health. I have had a number of such cases. In others the disease has recurred within a year, but in many life has been prolonged for a number of years.

DR. A. PALMER DUDLEY.—In regard to the first case, I believe that when cancer, especially epithelioma, of the uterus occurs in women so young, it is usually of very rapid growth, and therefore removal of the entire uterus and appendages is the only thing to be done. I recall three such cases seen in California some years ago, and also one in this city. All of the patients were women under 30, and one who refused operation died within a year.

As to the third case, I agree with Dr. Mundé that these conditions cannot be dealt with from below. Moreover, in all cases in which there has been an acute pelvic inflammation, there is always some portion of the omentum adherent to the pelvic organs, or bands of adhesion reaching across to the intestine, in such a way that it is almost impossible to diagnosticate the condition by way of the vagina, unless the whole hand is introduced into the peritoneal cavity. In several cases I have found extensive adhesions high up in the pelvis, and I recently lost one case simply because I did a hysterectomy from below instead of from above. Vaginal hysterectomy is easy to do, especially if the vagina is large; but I feel sure that operators will gradually abandon the vaginal route for the reasons I have stated, especially in cases in which there is a history of an old peritonitis and the appendages are large, for it is in these that there is danger of overlooking bands of adhesions which will later cause wandering pains in the abdomen.

DR. CLARENCE R. HYDE.—In regard to the first case, I would like to ask Dr. Cleveland whether he would remove the uterus in cases of cancer if there was infiltration of either vaginal wall.

DR. CLEVELAND.—Yes; and I would also remove a portion of the anterior or posterior wall of the vagina.

DR. J. E. JANVRIN.—In regard to hysterectomy in cases of epithelioma of the cervix, some four years ago I read a paper before the New York County Medical Association in which I reported eighteen or twenty cases of vaginal hysterectomy for cancer in which the disease was practically *confined* to the cervix. These cases covered a period of twelve years preceding three years prior to the reading of the paper. In a few cases there was an extension of the disease into the endometrium. Exactly one-third of the cases were still living without recurrence at the date of reading my paper. It is true that these might be called selected cases, for there was no involvement of lymphatics. I wish to declare myself as being in favor of vaginal hysterectomy, feeling sure that the operation is particularly appropriate in these cases. If the disease extends further up than the cervix, and if there is involvement of the body of the uterus and infiltration of the broad ligaments, the abdominal operation is the easier and more thorough method of dealing with the disease; but my own experience and observation have taught me that in such cases the removal of the uterus is hardly ever justifiable. In such cases the lymphatics are so infected that it is probably a certainty that the disease will very shortly recur.

DR. MUNDÉ.—I do not wish to be understood as absolutely condemning vaginal hysterectomy for cancer from every standpoint. The fact that Dr. Cleveland and many others have had a favorable experience with the operation would show that it offers a chance of cure in some cases. I am sorry to say, however, that since my first hysterectomy for cancer, in 1883, my experience, even in the most promising cases, has been such that I have yet to see a case in which the disease has not returned after the operation—probably because all diseased tissue had not been removed. In two cases I refused to complete the operation when I found the true condition, and in another I did an abdominal hysterectomy, finding it impossible to do anything radical from below. In my first case the disease returned in nine months at exactly the spot where the pathologist said it would recur, and this was the most favorable case I have ever seen. For these reasons I have not been and am not an advocate of vaginal hysterectomy for the radical cure of cancer of the cervix. As to the operation prolonging life, I do not think it is justifiable to do it merely upon that ground. Perhaps it has not been my lot to see favorable cases. I recently read some remarks made by Dr. Halliday Croom, the president of the Edinburgh Obstetrical Society, in which he says that in his experience no patient with cancer of the cervix has been materially benefited by any surgical procedure. Of course I think this is going too far; but I do think that the less a woman who is fairly comfortable is curetted, cauterized, and “tinkered” with, the better off she will be, provided, of course, that she is incurable or there is no acute bleeding or offensive discharge.

In the case reported this evening the patient is the youngest

but one upon whom I have operated for cancer of the cervix. Some years ago I removed the cervix for apparently limited epithelioma, from a girl of 18, with the galvano-cautery wire; the disease returned in six months. I then removed the uterus, but the disease again reappeared in another six months and the girl died.

ADENOCARCINOMA OF THE UTERUS.

DR. DUDLEY.—The first specimen which I have to show consists of the body of the uterus and most of the cervix removed by abdominal section from a single woman 56 years of age. She was well until a year ago, at which time she began to bleed slightly from the vagina. The bleeding was constant, but she paid no attention to it. I saw her four weeks ago and examined her carefully. The vagina was so small that I could barely reach the cervix. Bimanual examination showed the uterus to be somewhat enlarged, but the woman was very stout and it was difficult to make out the pelvic organs. I advised curettage for diagnostic purposes. This was done, and fully half a cupful of soft, grumous material was removed and sent to the pathologist at the Post-Graduate Hospital for microscopical examination. His report was that it contained the typical structure of adenocarcinoma of the body of the uterus. She then entered my private hospital, where she was seen by Dr. Janvrin, and operation was decided upon. The cervix was first dragged down and its connections with the vagina severed. The abdomen was then opened and the uterus brought up in the incision. I was just about to apply clamps to the broad ligaments when the patient showed signs of collapse. The abdomen was immediately filled with hot saline solution, and, in addition to this, infusion was employed. The patient soon rallied sufficiently for me to remove the uterus and introduce a strip of gauze for the purpose of drainage. It was then found that a small portion of the cervix remained, but, upon the advice of Dr. Janvrin, this was left to be removed when the patient was in a better condition. She was put to bed in a fairly good condition and has not had an untoward symptom since. During the first twelve hours there was a profuse action of the kidneys, the patient passing more than a quart of urine. This was no doubt due to the saline solution which was poured into the abdomen, and also to the infusion. As will be seen, the uterus contains a mural fibroid besides the adenocarcinomatous growth.

MULTIPLE FIBROID OF THE UTERUS.

DR. DUDLEY.—The second specimen is one which I removed yesterday, and before operation I did not know what the condition was. A gynecologist who saw the case with me thought it was a case of ovarian abscess. The patient was a single woman who had menstruated regularly until two years ago. About a year ago she began to have severe pain in the

back and constant dragging in the pelvis. She was very constipated, and during the past year has lost fifteen pounds in weight. Vaginal examination showed an anteversion of the uterus and a nodular tumor, attached to the cervix posteriorly, which pushed the uterus forward. The woman also presented the pathognomonic sign of gonorrheal infection—viz., a redness and pouting of the ducts of the vulvo-vaginal glands. I finally made a diagnosis of uterine fibroids. The uterus was removed and was found to contain nine fibroids, two of which are large and the others small. The case is interesting from the fact that the presence of the fibroids did not cause hemorrhage. The operation was done to relieve pain, the patient being a working-woman who could not afford to be laid up constantly. Suprapubic hysterectomy was done, a portion of the cervix being left *in situ*. The patient has made a good recovery.

DR. CLEVELAND.—It is astonishing how much trouble these small fibroids will give, while a large tumor will often give rise to no symptoms. In cases in which the symptoms are severe I never hesitate to advise operation, no matter how small the tumor may be.

DR. MUNDÉ.—It is indeed remarkable how large a fibroid tumor of the uterus can exist without giving rise to any symptoms. I recall a case seen eight years ago. The patient was a woman over 50 years of age and she had a retroperitoneal pelvic fibrous tumor which crowded the uterus up so that it could be seen through the anterior abdominal wall. This symptom caused an examination which revealed the tumor. There were no symptoms and no discomfort. The tumor was not touched and the woman remains well to this day. In a case recently seen, a woman had a pedunculated fibroid, as large as two fists, in Douglas' pouch, which seemed to give her much local pain. I removed the tumor by posterior vaginal section. For a time the symptoms were relieved, but soon she complained of the old pains, and I reopened Douglas' pouch and found everything right. As the pains continued, another surgeon removed the uterus and appendages. The pain persisted and still another surgeon removed the appendix (following his particular hobby). After this last operation the patient died. I have always believed that in this case the pains were neurotic, hysterical, and not due to the pressure of the tumor, as they were quite as severe after I removed the fibroid as before.

MULTIPLE FIBROID OF THE UTERUS.

DR. CLEVELAND.—This specimen consists of two very large fibroids, probably weighing together twenty pounds, and yet they gave rise to very few symptoms till within the past few months. The patient from whom they were removed is 38 years of age. She has menstruated regularly without pain till very lately and has never suffered from hemorrhage. She began to have pain only about three months ago. These tumors have evidently been in her abdominal cavity for a number of

years, though she had been entirely unaware of it till she first noticed an enlargement of the abdomen ten months ago. At the time of operation the case presented a very interesting point in diagnosis. Two distinct tumors were felt, one on the right, low down, and one on the left, high up, in close approximation, but with a distinct line of demarcation between them. The abdominal wall was so thin that the fingers of the hand could be readily passed down between the two, and no apparent connection between them was discoverable. The movement of either one from side to side apparently had no effect on the other. Bimanual examination made me quite positive that I had to deal with two fibroids of the uterus, connected together. One of my confrères of the hospital, who examined the case with me, was quite positive that the tumor had no connection with the uterus, but took its origin from above, probably the spleen. I felt the more positive of my own position as the general condition of the patient was quite good, with no cachexia, as would not have been the case if these tumors had originated in the spleen or kidney. On opening the abdomen my diagnosis was confirmed. One tumor involved the whole body of the uterus and was undergoing calcareous degeneration, and this is what probably caused the symptoms. The larger tumor above was found attached to the former by quite a thick band, deep in the peritoneal cavity, close to the spine; this accounts for the apparent complete separation of the tumors. I succeeded in getting my finger under this band and clamping securely close to each tumor, and severed the band between. The lower tumor was then lifted through the opening and drawn forward over the pubis. The other tumor was, with some difficulty, drawn through the incision. I should state that the incision extended only to the upper border of the umbilicus. I made a supravaginal amputation, leaving but a small stump of the cervix. The patient is making an excellent recovery.

DR. L. GRANT BALDWIN then read the paper of the evening, entitled

SOME NOTES ON THE CARE OF THE INTESTINE DURING AND AFTER ABDOMINAL SECTION.¹

DR. GEORGE TUCKER HARRISON.—Many important points have been touched upon in the paper, and in discussing it it is difficult to know where to begin. I agree with the author in the statement he made that we cannot lay down any hard-and-fast rules in these matters, for every case must be treated on its own merits. My experience has been that I have not lost patients because I did not open the bowels within the first twenty-four hours. I am under the impression that this hobby of opening the bowels early in all cases—and which practice may be credited to Lawson Tait—I must say I never could see the force of. This was tried years ago in cases of puerperal sep-

¹ See original article, p. 311.

sis, and a great many men thought they had found a panacea for these cases by getting profuse diarrheal stools. Since then experience has shown that this is not the case. In mild cases of sepsis there is no doubt but that a diarrhea will bring relief, but in very severe forms of sepsis this will not have a similar effect. I have seen patients die notwithstanding an early movement of the bowels after operation; I have even seen them die of ileus after the bowels have moved; therefore I do not see why it is so necessary to move the bowels early as a matter of routine. I have seen patients almost purged to death when they had not recovered from the shock of an operation. It does not seem to me to be good surgery to add to the weakness of a patient at such a time. We must exercise some discrimination as to when we should use saline cathartics.

DR. CLEVELAND.—I do not think it necessary that we follow any fixed lines in these matters. We all have our own methods of relieving the bowels after operation and we all obtain good results. Abdominal surgery never produced such results as it is producing in our time, but this is due to our perfect asepsis and not to our treatment of the bowels after operation. Personally I have followed out one method for a number of years. I rarely have the bowels moved until at the end of forty-eight hours, and my results have been such that I see no reason to make a change. However, what Dr. Baldwin proposes impresses me very favorably. The suggestions he makes are good and in some cases may be followed with benefit, but I do not think they are necessary in all cases. I am especially interested in what he says about the use of saline solution. Every day I am using saline solution in the abdomen early in the operation, and it certainly has a very positive effect upon the after-condition of the patient in diminishing shock.

DR. DUDLEY.—It is true that morphine and atropine before operation are of great service, but I do not use them often, because I have a peculiar dislike for morphine under all circumstances. I do not approve of giving Epsom salts before operation. Instead I have the bowels well emptied by compound cathartic pills or calomel. After the operation I give Seidlitz powders, for the reason that they cause distension of the bowels and Epsom salts do not. Distension of the bowels is what I want. I make as small an abdominal incision as I can work through. I do not employ Trendelenburg's posture, because I have not found it necessary. I still use sponges in my abdominal work because I prefer them. I prepare them myself and am sure that they are just as aseptic as gauze pads. I do not agree with the author in regard to washing out the abdomen. I pour the solution into the abdomen from a pitcher. If a pus tube ruptures I do not touch it with a sponge, but pour in water and float out the pus. I invariably drain through the vagina. If the intestine has been injured or if a stump of a tube is left, I pack with iodoform gauze, placing one end over the stump and the other end in the vagina. After the operation I have the patient turned upon the side and do not let her

lie on her back much. I do not use enemata of salt solution unless the patient has lost a good deal of blood. If the bowels do not act after Seidlitz powders have been given, I order an enema of turpentine, glycerin, and olive oil. My results are good.

DR. BALDWIN (in closing).—In regard to Dr. Harrison's remarks, I would say that I have seen cases in which, six or eight hours after abdominal section, the abdomen has been as tight as a drumhead, and these cases have died. If the treatment which I advocate had been employed they would have had increased chances of living. Of course I am speaking of severe cases in which it is difficult to get the bowels to move.

As to Dr. Dudley's remarks, I would remind him that I advised the use of Epsom salts in those cases in which sepsis existed prior to operation or in those in which for any other cause one had reason to fear trouble with the bowels. As to atropine and morphine, I fail to see what objection he can have to them. Morphine in small doses is an excellent heart stimulant. I do not think he can float out pus and other material with water from a pitcher as well as I can with a funnel and tube, and there can be no possible increased danger from sepsis. As to any oozing from the stump of a tube, there should be no stump left if the operation is carefully done. The tube should be well dissected out from the uterine wall and the peritoneum closed over it. It is needless to say that I would not think of disturbing a patient every few hours by giving stimulating enemata, unless indicated.

Official Transactions.

CLARENCE R. HYDE,
Secretary.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Regular Meeting, held February 13, 1900.

The President, CLEMENT CLEVELAND, M.D., in the Chair.

DR. HERMAN J. BOLDT showed a

GANGRENOUS DERMOID CYST

which he had removed from a woman four months pregnant. There had been torsion of the pedicle. The patient soon showed signs of intestinal paralysis, which had finally yielded to enemata of asafetida, turpentine, and milk. She soon thereafter aborted, and died on the sixth day after operation. The stump of the pedicle showed the clean, contracted markings of the angiotribe which had been used. At the autopsy a collection of pus had been found in one horn of the uterus.

DR. EGBERT H. GRANDIN presented a specimen of adenoma of the uterus, mainly to raise the question of

THE VALUE OF MICROSCOPIC EXAMINATION OF UTERINE
SCRAPINGS.

Dr. Grandin said that he had seen four cases of adenoma uteri in recent years, in two of which the diagnosis had been confirmed microscopically, and in two it had been negative. In the case now shown the patient was 42 years of age and suffered from menorrhagia. At the operation which was undertaken the uterus seemed large, and there was a bulging in the posterior wall which suggested adenomatous tissue. A hysterectomy was done and an adenoma was found. Dr. Grandin raised the question as to the dependence which the operator should place on the microscopic findings.

Dr. GRANDIN next showed a specimen from an

ECTOPIC GESTATION

which he had removed from a woman who had last menstruated in November, 1899, somewhat less than usual. The following month she flowed a little more than usual and had severe colicky pains. The patient was curetted a month later, and during the operation the curette slipped away and it was decided to open the abdomen. The tubal gestation was then found. Dr. Grandin called attention to the absence of the so-called classical symptoms, especially amenorrhea, and stated his opinion that colicky pains are the most important symptom of ectopic pregnancy.

In the discussion Dr. J. E. JANVRIN said that in the diagnosis of extrauterine gestation an unusually profuse or irregular flow is to be considered in making the diagnosis, and agreed with Dr. Grandin in attributing importance to the sharp, colicky pains.

Dr. HENRY C. COE narrated a case in which the patient skipped one period and then bled for several weeks, having also colicky pains. After a curetting by her physician she had a temperature when seen. A subsequent curetting brought away a mass as large as a two months' pregnancy. The symptoms, however, had been the classical ones of tubal pregnancy.

Dr. RALPH WALDO reported a case of his in which there were no colicky pains, but profuse hemorrhage. A movable tumor of small size proved on operation to be a tubal gestation sac.

Dr. H. N. VINEBERG was not certain of the infallibility of pathologists in making diagnoses of malignant uterine disease. He referred to a case of his in which he had submitted uterine scrapings from a woman of 38, who had bled profusely, to a pathologist. The report was carcinoma. At the operation a polyp was found to have been the source of the bleeding. Referring to Dr. Grandin's tubal pregnancy, he thought that irregular hemorrhages were far more frequent in this condition than amenorrhea. Dr. Vineberg also called attention to his

observation that women who are having intraperitoneal hemorrhages frequently faint.

DR. E. B. CRAGIN said that one reason that surgeons sometimes have unsatisfactory results from pathological examinations was because they do not send him good specimens. The curetting for this purpose must embrace every part of the uterus, and all the scrapings must be submitted. Dr. Cragin also said that it is evident that there is no single reliable symptom of ectopic gestation on which to base a diagnosis. All the symptoms must be considered and each case judged individually. When the family physician states that the patient has had a miscarriage, that he has curetted and has found the uterus empty, the diagnosis of ectopic gestation must be held in mind.

DR. ANDREW F. CURRIER spoke of the abuse of the curette, and insisted that for diagnostic purposes the curettage should always be done by the gynecologist. He also spoke of the absence of pathognomonic symptoms in tubal pregnancy until the advent of a rupture.

In closing the discussion on these cases, DR. GRANDIN said that he wished to make the point that his patient with tubal pregnancy had neither amenorrhea nor hemorrhage.

DR. GRANDIN reported a case of

LYMPHATIC PUERPERAL INFECTION

in which he had aborted puerperal sepsis by performing a hysterectomy. The patient had a history of acute metritis and peritonitis following abortion. The diagnosis seemed doubtful, in spite of the tympanitic abdomen and the doughy cul-de-sac. A hysterectomy was decided upon, when the section disclosed the peritoneal cavity filled with sero-pus, the intestines and bladder covered with a greenish deposit, and the blood vessels thrombosed. The tissues were soft, making ligation difficult. The patient recovered with a vesico-vaginal fistula, caused by an accidental rent in the bladder during the operation. Previous to the operation three kinds of antistreptococcic serum had been used without avail. The case was regarded by Dr. Grandin as one of undoubted sapremia. He emphasized the difficulty of making a diagnosis in these cases early enough to save the uterus, especially when the infection is a mixed one, as it was in this case. In the purely sapremic cases antistreptococcic serum is useless.

In the discussion of this case DR. H. N. VINEBERG took issue with Dr. Grandin as to the indications for removing the uterus for puerperal sepsis. He agreed with German observers that if there are no streptococci in the blood, and if the kidneys are in good condition, the operation may be performed with safety.

DR. E. B. CRAGIN believed it safer to teach that abdominal or vaginal hysterectomy should not be done in cases of puerperal sepsis unless it is strictly indicated.

DR. ABRAM BROTHIERS presented a specimen of

HYSTERECTOMY FOR MALIGNANT DISEASE OF THE UTERUS.

The patient was 28 years of age, had had one child and two miscarriages. Ten weeks before, amputation of the cervix and a curettage had been performed at a hospital. The patient had for some time been menstruating every twelve to thirteen days, then ceasing for a few days, only to return. On January 13 she was subjected to an intrauterine vaporization at 212° F., but this did not stop the bleeding. A hysterectomy was then undertaken. A small cyst of the left ovary was found. Hemorrhage was controlled by clamps. The pathologist reported the case to be an early carcinoma, the uterine wall showing hyperplasia.

In the discussion DR. GRANDIN said that he preferred to remove both ovaries and tubes when doing a hysterectomy, as he did not fear the establishment of a premature menopause.

DR. CLEMENT CLEVELAND presented an

INTRALIGAMENTOUS CYST

which he had removed. The cyst and uterus had formed one mass and a total hysterectomy had been performed. The upper part of the cyst had first been removed by the application of a clamp. Dr. Cleveland preferred this method to that of emptying the cyst and allowing the sac to contract.

DR. CLEVELAND then showed a uterus which he had removed by

SUPRAVAGINAL HYSTERECTOMY.

On opening the cul-de-sac many adhesions were found, and the tubes, ovaries, and uterus were enlarged, although there was no history of gonorrheal infection. On each horn of the uterus a mass the size of a hen's egg was felt, which, it was thought, might be distensions by pus. Supravaginal hysterectomy was then decided upon. Pus was discovered in both horns of the uterus, as well as in the interstitial portions of the tube.

DR. CLEVELAND next showed a specimen which was removed by

MYOMECTOMY AND HYSTERECTOMY.

Six years previously the patient had been operated for lacerated cervix, having the fibroids at the time. She had reported from time to time, but it was but two weeks previously that Dr. Cleveland had operated her on account of increasing pressure symptoms in the rectum and bladder. Upon opening the abdomen a large mass was found which filled the pelvis so completely that the ovarian arteries could not be reached without a preliminary myomectomy. The upper mass and then a lower one were removed, and finally a supravaginal hysterectomy was performed.

DR. HENRY C. COE reported

A CYST DEVELOPING FROM AN OVARY AFTER CONSERVATIVE OPERATION

in a patient upon whom three celiotomies had been done. The woman had had her left tube and ovary removed three years previously. In March, 1899, she was admitted for persistent pain in the right side with dysmenorrhea. The right tube was found to be generally enlarged, thickened, and occluded, the ovary being apparently normal. The tube was resected and the ovary left *in situ*. In November, 1899, she was readmitted, complaining of severe pain in the right side, increased at the time of menstruation. A cystic tumor the size of a small orange was felt near the right horn of the uterus. This became noticeably larger at the menstrual period, diminishing in size afterward. She was not operated at this time. She was again admitted February 5, 1900, and when the abdomen was opened a few days later a simple follicular cyst of the right ovary was found, the stump of the tube being healthy. The case was reported mainly to emphasize some of the possible results of conservative operations on the adnexa.

In the discussion DR. WALDO said that he had recently had a similar case, in which a small cyst had developed in the portion of the ovary left behind.

DR. BACHE McE. EMMET said he had seen two cases of a similar nature. He said that in treating cystic conditions of the ovary one must consider the amount of disease in the organ and the age of the patient. He preferred the radical operation, if age and circumstances permit.

DR. CLEMENT CLEVELAND showed

A NEW ANGIOTRIBE

which had been devised by Dr. J. Dougal Bissell for compressing the tissues of a pedicle in order to do away with the use of ligatures. Dr. Cleveland said that he had used the instrument several times and had seen no bleeding follow its employment. In reply to a question by Dr. Grandin, he said that in women with small vaginæ more difficulty was experienced than in those in whom the vagina was capacious.

DR. J. RIDDLE GOFFE said that Dr. Bissell had anticipated Tuffier in the device of the angiotribe. He had used it in two inoperable cases and no bleeding had followed. He thinks Dr. Bissell's instrument easier to handle than the French angiotribe. In reply to a question by Dr. Dickinson as to the amount of sloughing after the use of the instrument, Dr. Goffe said that the discharge was very slight and that the stumps healed more promptly than when ligatures were used. By completely shutting off the vessels and lymph channels, it is of value in vaginal hysterectomy for cancer. It is also useful in reaching a high pyosalpinx which cannot be dragged down.

DR. CLEVELAND added that all adhesions must be broken

up before the instrument is applied, in order that the stump may not be dragged upon. Dr. Dickinson asked if there was more danger by handling the stumps after the use of this instrument than after using Dr. Skene's electric clamps, to which Dr. Cleveland gave assent. He believed that Dr. Bissell's instrument would supersede that of Tuffier, because it is more easily handled and is considerably cheaper. Dr. Cleveland said, in answer to a question by Dr. Waldo, that when there is apt to be a lateral traction of the stump he preferred the ligature, to avoid a possible separation of the tissues of the stump and consequent bleeding.

DR. BOLDT said that one great advantage which the Bissell instrument possesses over the Tuffier instrument lies in the groove which runs lengthwise along each of the blades and forms an additional barrier to hemorrhage from the stump.

DR. BROOKS H. WELLS read the paper of the evening, entitled

THE CLINICAL SIGNIFICANCE OF DEVELOPMENTAL DUPLICATIONS OF THE UTERUS AND VAGINA.¹

In the discussion, DR. DICKINSON said that an interesting feature of cases of double uterus lay in the fact that when these patients bear children, pregnancy takes place alternately in the right and left uterus.

DR. CRAGIN narrated several cases in which the vaginal septum had interfered with delivery, rendering its incision, or the removal of the hymen in one case, necessary.

DR. CURRIER told of a number of cases of these deformities which had come under his notice.

DR. WELLS, in closing the discussion, spoke of the amusing errors which sometimes arose in these cases because one physician had examined through one vagina and another through the other. An interesting feature in pregnancy in one half of the uterus, in cases of double uterus, is whether the uterus will dilate sufficiently for the child to be delivered. If it does not, the pregnant horn should be removed, even at the sacrifice of the child, since the children of such pregnancies are usually weak and ill-developed and do not live long.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

On the Etiology of the Nausea and Vomiting of Pregnancy.—David James Evans¹ thus summarizes his article: 1. There exists more or less of a rhythm in the paroxysms of nausea and vomiting in pregnancy. 2. There must also exist a rhythmical exciting cause for these paroxysms. 3. There is a rhythm in the contractions of the uterus which occur through-

¹ See original article, p. 317.

out pregnancy. 4. The essential exciting cause of the paroxysms of nausea and vomiting of pregnancy is frequently the physiological contraction of the muscular fibres of the uterus. The author thinks it probable that the beneficial effects of nerve sedatives in the treatment of this distressing condition are obtained not so much by inhibiting the uterine contractions as by soothing the irritable nervous system and thus controlling the reflex.

Dystocia caused by a Short Cord.—Samuel M. Brickner²⁸ states that cords shorter than ten inches are very rare. In two services embracing 1,200 cases he never saw one. He briefly summarizes the diagnostic points in the order of their importance, as follows:

1. Recession of the head in the intervals of pains.
2. Arterial bleeding during and between uterine contractions.
3. Urination in small quantities in the intervals of pain after the establishment of the second stage.
4. Pain over the placental site, especially during a uterine contraction or during the application of forceps.
5. A desire of the patient to sit up.
6. Uterine inertia.

When a short cord is suspected, and the life of the child is thought to be in danger from the objective signs of an accelerated heart or the passage of meconium, the labor should be terminated as soon as possible. By pressing the fetus down the placental insertion of the cord is brought near its umbilical insertion and the danger of rupture somewhat obviated. But this is not always feasible or possible. Postural methods may be tried by having the mother assume a squatting or kneeling position. If the child presents by the breech the cord should be tied as soon as the umbilicus is born. The use of the forceps is practically contraindicated in these cases; it would be almost certain to end disastrously to the child.

He reports the case of an elderly primipara who had the following symptoms: pain over the placental site, arterial bleeding, recession of the head between the pains, frequent urinations between pains. The child had an umbilical hernia. The cord measured $10\frac{1}{2}$ inches.

Rhythmical Intrauterine Fetal Movements.—Ersilio Ferri,²⁹ as a result of his researches, reaches the following conclusions: 1. That during the last months of gestation the majority of pregnant women become aware of especial rhythmical motions which can be registered graphically and which are of purely fetal origin. 2. These movements are not connected with the ordinary active movements of the fetus, such as extension of the vertebral column, motion of the limbs, and turning or displacement of the fetus; they occur with periodicity several times during the twenty-four hours, and vary in frequency and duration. 3. They occur during labor, and in febrile attacks during pregnancy, just as they do under normal conditions. They are perceived equally in primiparæ and multiparæ, and are usually independent of any external cause;

they occur when mother and fetus are in motion as well as when they are in repose. 5. They can be divided into two types: the one brusque and alternating with pauses, the second rapid, undulatory, continuous; both may occur in the same patient and simultaneously. 6. From the position of the fetus and their own situation, they appear to correspond to the movements of the thorax of the fetus, both the upper thorax and the diaphragmatic and costo-abdominal portion; they are to be considered as physiological movements from their frequency and rhythm, and from the good condition of the fetus during pregnancy and after birth. 7. It is highly probable that the first type of movements are a species of fetal hiccough, and the second superficial intrauterine respiratory movements.

Researches and Observations in regard to the Maternal and the Fetal Blood.—Ersilio Ferroni² thus summarizes a long and detailed account of his researches: 1. In healthy pregnant women there is a slight diminution in the number of the red blood corpuscles and in the amount of hemoglobin, the first equalling about half a million, and the second about 20 degrees of Fleischl's thermometer, this diminution being more marked as term is approached. 2. At the moment of birth the fetus has a greater number of red blood cells than adults (about one and a half millions) and more hemoglobin (20-25 degrees). 3. The number of red corpuscles and the amount of hemoglobin in the fetus are in inverse ratio to the age of the fetus. 4. The sex of the child has no influence upon cells or hemoglobin. 5. The number of red cells and the amount of hemoglobin in the fetus at the time of birth are not in direct proportion with its development (weight and length), but, on the contrary, there seems to be an inverse ratio, so that a child born at term, but less developed than normal, is in the same condition as a prematurely born fetus. 6. The fetal blood is always richer in cells and in hemoglobin than the maternal. The difference is about two and one-half millions for the cells and 50 degrees for the hemoglobin, and is more marked in the early stages of gestation. 7. Diminution in the number of cells and amount of hemoglobin in the maternal blood does not cause a corresponding diminution in the fetal blood; in such cases the difference in richness becomes very apparent. 8. Infants born of anemic mothers have fewer red cells and less hemoglobin than those born of healthy mothers. In these cases, however, the difference between the maternal and fetal blood is very marked in favor of the latter. 9. There is no direct relation between the richness of the maternal blood and the development of the fetus (weight, length). 10. In regard to the existence of any relation between the maternal blood and the sex of the fetus, it may be said that patients poor in red corpuscles and hemoglobin give birth to more girls than boys, and *vice versa*.

Prevention of Intrauterine Asphyxiation.—In three cases Rapin³ has prevented threatened intrauterine asphyxiation by the introduction of air into the uterus. This was done by means of a syringe attached to a rubber catheter, no more than

from 500 to 600 cubic centimetres being injected at a time. He holds that the danger of air entering the uterine sinuses is not as great as might appear, as the air enters only the amniotic sac, the walls of which cover the uterine sinuses.

Treatment of Acute Puerperal Sepsis.—H. N. Vineberg¹⁹ brings out the following points in a paper on puerperal sepsis:

1. Puerperal sepsis is wound fever or wound infection, and wound infection in the female genital canal, as elsewhere, calls for surgical measures, such as free drainage, irrigation, and the removal with a sharp instrument of any debris or exudate that may form on the surface of the wound. These means failing to accomplish the desired result, perform ablation of the diseased organ.

2. In a given case of puerperal sepsis a thorough search is to be made of the whole of the genital canal, in order to determine the site of the original infection.

3. If this is situated in the uterus, curettage, drainage, and irrigation are to be employed. In 95 per cent of the cases of puerperal sepsis nowadays met with, this plan of procedure will be all that is necessary to bring about a cure.

4. In the remaining 5 per cent, roughly speaking, these measures fail to arrest the infection. An exploratory laparotomy is then indicated, the further course to be guided by the pathological lesions found. In most cases total hysterectomy will be required.

5. When large collections of pus form and are so situated that they can be readily reached either with a vaginal incision or with one above either of Poupart's ligaments, no time should be lost in resorting to surgical relief. When, however, they are not so favorably situated, judicious delay is advisable, with the hope that ultimately the pus may be evacuated without the risk of soiling the general peritoneum.

Poisoning by Cyanide of Mercury.—Chaleix-Vivie²⁰ records a fatal case of poisoning by cyanide of mercury used in a vaginal douche just after labor and followed soon after by an intrauterine douche of boiled water. Another vaginal douche containing the drug was given a day later. Marked salivation began two days after delivery, and anuria was absolute for five days after parturition, in spite of subcutaneous injections of normal saline solution. The stools were watery and bloody. For the next four days small quantities of urine were passed, then the anuria became absolute, and death occurred two days later. No mercury was found in the scanty urine. The sudden onset of the symptoms of poisoning is attributed to the renal insufficiency, as it was learned that the patient had passed very little urine before labor and had had a mild eclamptic attack during delivery.

Dystocia from Rigidity of the Cervix.—Potocki²⁰ writes that when, the cervix being dilated at least two centimetres, it is necessary to terminate labor, it is justifiable to make incisions into the cervical tissue to the depth of two or three centimetres before extracting the child. If the dilatation is less than two

centimetres, but the cervix obliterated, there would be danger of tears extending into the lower segment of the uterus from such incisions when extracting a child at term. It is, however, right to incise the cervix up to the insertion of the vagina if labor is left to proceed naturally or if craniotomy is performed. Incisions should be made at the side of the cervix and posteriorly and anteriorly. The last incision should not extend to a greater depth than one centimetre, to avoid wounding the bladder. If the cervix is not obliterated, incisions are dangerous and Porro's operation is indicated.

Pyelonephritis.—According to Lepage,³⁰ when a pregnant woman with an increase of temperature and pulse has abdominal pain more or less localized in the lumbar region, all urine should be saved and examined. If pyelonephritis is diagnosed, the treatment is rest in bed, milk diet, and mustard pastes over the painful renal region. Irrigation of the bladder is indicated only when obvious signs of cystitis are present. Interruption of pregnancy may be demanded at any time by persistence of temperature or bad general condition of the patient, especially when the treatment indicated above has been rigidly followed and proves ineffectual.

Hematuria of Pregnancy.—Guyon and Albarran³¹ briefly report two cases of hematuria during pregnancy. In the first some urinary difficulties were followed, in the seventh month of a second pregnancy, by hematuria. Ureteral catheterization showed that the blood came from the right kidney. The hematuria ceased eleven days before labor and had not recurred two months later. The second patient, six months pregnant, had had hematuria for four months. Examination showed that the blood was of renal origin and the veins of the bladder were dilated. In view of the rarity of such cases, Guyon questions the existence of essential hematuria of pregnancy as an entity, and favors the idea that an actual lesion of the kidney is present in such cases, and that hematuria is merely encouraged by the congestion due to pregnancy.

Abdominal Pregnancy.—Van Hassel³² reports a case of abdominal pregnancy which he operated upon by the vaginal and later by the abdominal route. The patient was 32 years old, menstruated at 16, was married at 18, had never been pregnant. The fetus was found macerated and adherent to the sigmoid, descending colon, and small intestine. The uterus and appendages were normal, and there were no evidences of tubal rupture or old hemorrhage, and no history of great pain, shock, or syncope.

GYNECOLOGY AND ABDOMINAL SURGERY.

Intestinal Obstruction.—P. Clennell Fenwick²¹ cites a case of intestinal obstruction occurring in a woman 65 years old and caused by a large gallstone. The stone was caught low down in the large intestine. The abdomen was opened and the stone removed. The incision in the gut was closed by

Lembert sutures reinforced by stitching a portion of the omentum over the incision. The recovery was uneventful.

Previous to the operation this patient had been under medical treatment on account of intense irritability of the bladder with every symptom of calculus except hematuria. From the position of the stone at the time of operation it was concluded that it had pressed on the neck of the bladder. The stone weighed 25½ grains.

Vaginal Celiotomy.—J. A. C. Kynoch²² states that the advantages claimed for vaginal over the abdominal route are: (1) shorter convalescence; (2) no abdominal cicatrix, therefore no risk of hernia or subsequent formation of intestinal or omental adhesions; (3) less shock, on account of the peritoneum being less exposed; (4) drainage, if necessary, is best carried out through the posterior fornix. Its drawbacks are: (1) on account of the limited space, dense adhesions are more difficult to manage, and consequently greater danger of wounding viscera; (2) greater difficulty in rendering the vagina aseptic.

Cases suitable for the vaginal route, other means of treatment failing, are: (1) mobile retroflexion, causing symptoms at or about the menopause; (2) chronic ovaritis with adhesions; (3) prolapse of the ovary with fixation; (4) ovarian cysts, if small, whether dermoid, simple, or papillomatous; (5) pelvic hemocele; (6) unilateral, mobile tubal swellings.

Cases unsuitable for this treatment are: (1) large tumors; (2) old-standing tubal disease with dense adhesions, where the complete removal of the appendages is necessary.

Operation for Acute Appendicitis as for Quiescent Cases with Complications.—Robert F. Weir,¹⁴ when operating, increases the intermuscular space of McBurney by incision of the rectus sheath. At first he was hampered by the difficulty of dragging the median edge of the divided fascia of the external oblique sufficiently far inward to expose amply enough the anterior sheath of the rectus muscle. He now tears off, with the finger tips or with the end of a blunt scissors, the already denuded fascia of the external oblique muscle from the sheath of the rectus quite up to the median line, where it is held retracted by an assistant. The anterior sheath of the rectus is now divided transversely in a line continuous with the opening made in the peritoneum by the original muscle-separation operation. The outer edge of the external rectus muscle is then lifted up with a director or the end of blunt scissors, and carried by a retractor also to the median line or as near as may be desired. On the thin transversalis fascia, with the peritoneum underneath it, that here makes up the posterior sheath of the rectus, will be seen the epigastric vessels, which should be seized, divided and ligatured, and sometimes pulled outward, and the sheath and peritoneum cut in a manner similar to the outer sheath. When blunt retractors are now passed into the peritoneal cavity and the abdominal wall put on the stretch, there is a very superior exposure of the whole pelvis and of the right iliac fossa. He has never before been

able to command these parts so well until exposed by the incision, and particularly is it so if the gravity action induced by a sand bag under the right hip or by a Trendelenburg position be judiciously used after the removal of infecting inflammatory fluids.

The Hockey-Stick Incision for Appendicitis.—Willy Meyer's¹³ usual incision in most cases of acute appendicitis commences at a spot about half an inch above and midway between McBurney's point and the anterior superior spine, and ends about one-half to three-quarters of an inch from Poupart's ligament. In making it he first ascertains where the femoral artery pulsates on its passage underneath Poupart's ligament. The left forefinger of the assistant marks this spot, and he cuts toward it. The fascia of the external oblique and the following structures are split in the same line. After having entered the abdominal cavity it will become evident whether or not the incision is large enough to enable us to do the necessary work. If the appendix is found to be situated inward or downward and a wider entrance be needed, the incision can first be lengthened straight upward as far as the surgeon thinks proper. With reference to lengthening the lower end, he now proceeds in the following way: He enters the peritoneal cavity at the lower angle of the wound with his left forefinger and slides it inward to the spot where the epigastric artery pulsates; he then curves the lower end of the incision by drawing the knife in a horizontal line (that is to say, perpendicular to the median line of the body), thus forming a rounded-off angle of 110 to 120 degrees. The entire wound then has the shape of a hockey stick. In making the horizontal part of the incision, care must be taken not to injure the epigastric plexus. It is primarily caught between two forceps, then cut and ligated. The incision ends at the border of the right rectus muscle. If still more room be needed, the belly of the rectus can be easily drawn inward and the peritoneum beneath it incised in the same direction. In pulling the borders of this wound apart it will be seen that an easy access has been gained to the organs situated within the small pelvis.

Exploration of the Abdominal Cavity.—J. Homans²³ advises the exploration of the abdomen by means of the hand whenever the abdomen is opened and the incision is large enough to admit the hand.

The Use of Irrigating Fluids in the Abdominal Cavity.—J. B. Murphy¹⁶ states that during operation infection of the peritoneum may come from three sources—principally and primarily, through the hands of the surgeon or his assistants; next, from the skin of the patient; and lastly, from the air. If the infection has been carried in, irrigation will not remove it. If we treat the peritoneum as a broad surface, and consider its pathology and its relations to operative work the same as the skin, we will rapidly come to operate in the peritoneal cavity, the same as we do outside of it, without irrigating fluids or antiseptic solutions.

An Improved Method of treating Prolapse of the Uterus and Bladder.—I. S. Stone¹ says that it has long been his observation that failures in vaginal plastic work came about through the agency of the cystocele. Restoration of the pelvic floor would not always prevent the cystocele from, to some extent, undoing the repair of the posterior vaginal wall and peritoneum. Therefore, he says, if we can devise some method of lifting and permanently sustaining the anterior vaginal wall with its superimposed bladder and other viscera, it would seem that we have found an additional means of support for a prolapsed bladder, and that we have to this extent still further overcome one of the most annoying accidents due to parturition. Anterior colporrhaphy, as ordinarily performed, using merely a denudation, is not, in the author's opinion, a uniformly successful and permanent operation for the relief of prolapse of the bladder. Nor does he think that the vaginal wall is over-stretched laterally in every case, as it is undoubtedly as much elongated antero-posteriorly as otherwise, thus indicating some method of shortening the anterior wall and not being satisfied with merely "narrowing" the canal. The steps of his operation are as follows: first, incision of vagina over cervix; second, separation of bladder from uterus and adjoining tissues; third, suture of vagina to higher point on anterior surface of uterus, closure of space made by separation; fourth, opening the abdomen and further separation of bladder; fifth, closure of abdomen; sixth, posterior colporrhaphy and perineorrhaphy.

Hernia in the Adult Female.—T. H. Manley²⁴ states that, as a routine procedure, surgical intervention in simple, reducible, coercible hernia of any description should not be encouraged. Independent of the strangulated hernias, the resources of surgery may be generally utilized with advantage and safety in three types of feminine hernia.

1. In the inguinal hernias of infancy of every description, for the reason that they may contain some of the organs of generation; they are often cystic; unlike the male inguinal hernias, they are not prone to undergo spontaneous reduction; and, furthermore, as there is no important tubular structure passing through the inguinal canal, it may be solidly sealed.

2. In infantile umbilical hernias operation should be practised early where they are of considerable volume and incoercible.

3. It is doubtful whether in the reducible, non-complicated, and coercible hernias surgery should be invoked for their cure. It remains an open question whether femoral or inguinal hernias are aggravated by labor or pregnancy.

In strangulated femoral hernia Manley believes taxis to be unsurgical except in the hands of experienced men and in exceptional cases. He believes the best way is to divide all tissues from without and carefully inspect the contents of the sac, and to make the period of narcosis as short as possible.

He has collected 166 cases of strangulated femoral hernia in both sexes treated by colotomy. Of these, 150 were females

and 16 males—a sexual proportion of nearly 10 to 1. There were 59 deaths—35.5 per cent mortality. The females gave 52 deaths, or 34.6 per cent mortality; the males gave 7 deaths, or 43.7 per cent mortality.

The average age at the time of operation in both sexes was 40 years and 7 months.

Cervical Flexions.—T. J. Bell¹⁷ believes that cervical flexions do not command the attention which their importance demands; that they are often overlooked as being the cause of dysmenorrhea and sterility. He states that anteflexion of the uterine corpus is a very rare occurrence, and that this, as well as corporal retroflexion, is a mechanical impossibility without prolapse. The first cause leading up to anteflexion lies in faulty development, and an elongated cervical canal always means faulty development. Dysmenorrhea in married and unmarried women, with sterility in those married, should raise suspicion of flexion at the internal os. He advises correction of the flexions in both married and unmarried women at the earliest possible moment.

Further Experience with the Operative Treatment of Anteflexion.—N. L. Burrage¹ advises: 1. In anteflexion without ovarian or tubal disease, and free from shortened utero-sacral ligaments or posterior adhesions, dilatation, curetting, and Dudley's operation or amputation of the cervix, with a preference for the former. 2. In anteflexion with retroposition and shortened utero-sacral ligaments or posterior adhesions, and without ovarian or tubal disease, dilatation, curetting, and division of the utero-sacral ligaments or adhesions by colpotomy, and Dudley's operation or amputation of the cervix, with a preference for the former. Amputation of the cervix is useful where the cervix is excessively large, and also where there is extensive erosion of the crown of the cervix. In married women, in both of the foregoing classes, dilatation and curetting without other operation are sufficient, because pregnancy in a majority of instances will straighten the uterus and stretch ligaments and adhesions. Should pregnancy not supervene within a number of months and the symptoms persist, another curetting and Dudley's operation, with or without division of the ligaments, may be done. 3. In anteflexion, with or without retroposition, and ovarian or tubal disease, dilatation, curetting, Dudley's operation, and suspensio uteri, the utero-sacral ligaments being divided through the abdominal wound if they are shortened, and whatever may be necessary done to the ovaries and tubes.

Intraligamentous Growths.—Thomas H. Hawkins¹ thus describes his method for the removal of an intraligamentary cyst of sufficient size to fill the pelvic and a portion of the abdominal cavity: The abdominal cavity is opened into in the usual way; if the tumor is very tense and the abdominal wall rigid, a portion of the fluid is drawn from the cyst. Then, on the opposite side from the growth, he ligates the Fallopian tube and the broad ligaments as in a hysterectomy, follows

down the side of the uterus, cuts and clamps the uterine artery, peels the bladder back from the uterus, amputates the cervix, clamps the uterine artery in the opposite side, and, before proceeding to enucleate the growth together with the uterus, clamps or ligates the ovarian artery, if possible, on the tumor side, seeks the point of cleavage, and rapidly enucleates the tumor. He then trims down the sac and closes tissues over the stump of the uterus with a continuous suture, as in an abdominal hysterectomy for fibroid. The operation in such a case is exceedingly simple, but in larger growths, especially of the papillary variety, or more particularly of those that are of the migrating or retroperitoneal form, the complications are many and will have to be met according to the exigencies of the case, but the general principle to be observed in these cases is the same in all—that is, to control the ovarian and uterine arteries. The author claims that by this improved method there is very little hemorrhage, the operation is simplified, the patient makes a quick recovery, there are no bad sequelæ, the mortality is reduced, and it is a perfect operation, except that it does not overcome *all* the difficulties encountered in removing the most complicated of these intraligamentous neoplasms.

Two Cases of Pelvic Hematocele and One of Dysmenorrhea.—G. E. Herman²⁵ reports two cases of hematocele. In one case the peritoneal cavity was full of blood; in the other the blood was clotted and confined in a space limited by adhesions. The first case gave a history of one missed menstrual period. She complained of pain in the abdomen and down the right leg. On examination a swelling was felt bulging into Douglas' pouch. The abdomen was distended and tender. The swelling increased in size rapidly, and the abdomen was opened. The abdomen was full of dark fluid blood and some clots. A ruptured tube was found; this was removed with the ovary of the same side. The swelling caused by blood is always soft at the beginning; it does not get hard until the blood has had time to clot, and until then there is no physical sign.

In the second case there was a history of ectopic gestation which had ruptured. On examination the abdomen was tender and there was a swelling in the right iliac region. By the rectum this swelling was felt to be convex. An incision was made in the vagina behind the uterus, and the cavity containing the blood was opened and the blood removed. The right tube was found ruptured and contained the remains of a placenta. The placenta was removed and the cavity packed.

The reason for the choice of the different operation in these two cases lies in the difference in the object to be achieved. In the one case the object was to stop the hemorrhage, and in the other to empty the cavity so as to save the patient from a long illness while a blood clot was being slowly absorbed.

The case of dysmenorrhea occurred in a girl 19 years old; it has troubled her only for the last three years. The pain was

very severe, paroxysmal, of short duration, and not relieved by recumbency. It came on some two or three hours after the flow commenced. This case was treated by dilating the os with bougies. Subsequent menstruations have been painless. With dysmenorrhea there commonly goes sterility; and often sexual connection causes pain. This is not always so, for some patients with spasmodic dysmenorrhea become pregnant, and that usually cures the dysmenorrhea. Pregnancy is Nature's cure for dysmenorrhea. A certain number of cases of dysmenorrhea do not become pregnant, and sexual intercourse is repugnant to them and causes pain. Often the mere dilating of the cervix uteri, without doing anything to the vagina, will cure dysmenorrhea and remove the difficulty in sexual intercourse. In some cases there is vaginismus—that is to say, coition is not only disagreeable, but the attempt provokes spasmodic contraction of the levator ani muscle. With this there sometimes goes a similar hyperesthesia of the rectum, so that patients are unable to tolerate enemata. It is a morbid condition of the whole pelvic nervous system. The best treatment for this kind of dysmenorrhea is dilatation of the cervix by means of bougies.

Laceration of the Cervix.—A. E. Giles⁴ states that a simple laceration of the cervix produces no symptoms. When these appear they are due to complications. Thus, adenomatous disease of the cervix gives rise to vaginal discharge, pain, and general weakness. The discharge, commonly known as "the whites," and technically as "leucorrhea," consists of abundant mucus mixed with shed epithelium. Sometimes it is muco-purulent and acquires a yellowish color (xanthorrhœa); it may then be very irritating, producing vulvitis and pruritus. The pain is nearly always referred to the sacrum. The continual discharge weakens the patient and may be followed by subjective nervous disturbances. When the case is further complicated by retroversion, prolapse of the ovaries, and ovarian congestion, additional symptoms appear; these are pain and a feeling of weight and "bearing down" in the lower part of the abdomen; dysmenorrhea, which takes the form of pain in the iliac region and down the thighs; dyspareunia, from pressure on the tender ovaries; and pain on vaginal examination, from the same cause. Bladder disturbances are not uncommon, especially frequent and painful micturition. It is well known that chronic pelvic troubles are liable to be associated with irritability and mental depression, and the condition under consideration is no exception to the rule. The preliminary measures before operation are regular douching and the periodical insertion of glycerin tampons. Where there is a muco-purulent discharge, applications of iodized phenol should be made to keep the surface clean. The patient is anesthetized and placed in the lithotomy position, and the surface well exposed by means of Auvard's speculum. The vagina is thoroughly disinfected by douching and swabbing; and dilatation and curetting are then carried out when necessary. After this the

anterior lip of the cervix is seized with a volsella, and the reversible tenacula-forceps introduced, exactly in the middle line, and the points separated. By this means the two lips of the cervix are held widely apart. The volsella is then removed. By means of scalpel and forceps two flaps are now dissected off the exposed surface, taking care to leave a narrow strip of mucous membrane in the middle line, which will form the lining for the new cervical canal when the lips are approximated.

The free oozing from the denuded surfaces serves to deplete the cervix and diminish its volume. When the flaps have been dissected off, the tenacula-forceps is removed, the lips of the cervix are allowed to fall together, and the forceps is then re-applied in such a way as to hold them in apposition. Care must again be taken to secure the cervix in the middle line. The instrument enables the operator to manipulate the cervix during the introduction of the sutures. For this purpose a curved needle set laterally on a handle is very convenient, or small curved needles may be used with a needle-holder. The best material for the sutures is silkworm gut, and, if secured by means of the shot and coil, their subsequent removal is greatly facilitated. The vagina is lightly packed with gauze. This gauze is removed on the following day, and the vagina is douched with sterilized water twice daily for the first week and once daily afterward. The sutures are removed on the tenth or twelfth day. The patient is allowed to get up on the tenth day.

Perineal Injuries.—J. B. Cooke²⁰ states that in women with justo-major pelves it is very difficult to avoid laceration of the perineum. Notwithstanding the fact that with an anesthetic and careful management of the head its passage through the vulva can be controlled exactly, it is difficult to avoid this accident. The most rational explanation thereof seems to be that, owing to the abnormally increased calibre of the justo-major pelvis, the head does not "mould," and when it is delivered it distends the maternal soft parts to an excessive degree. It has, in fact, all the characteristics of a head in a breech delivery.

The Increasing Prevalence of Cancer.—G. Betton Massey¹⁶ has had compiled for him by the statistical officers of the departments of health of the seven largest American cities, exclusive of Chicago, the death rate of cancer. It appears from these statistics that the greatest increase has occurred in the city of San Francisco, where the ratio has crept up from 16.5 cases in 100,000 population in 1866 to 103.6 cases in 100,000 in 1898. This is an increase of more than six times as many in thirty-two years. The city of Boston shows the next most considerable, the ratio of cases to living persons having almost trebled in twenty-four years between 1863 and 1887. After that date there was a temporary decrease, followed by a tendency to increase to the present time. The statistics show that in these seven cities there were 35.4 deaths per 100,000 living persons; in 1898, 66.4 deaths per 100,000 living persons, showing

that the ratio of cancer deaths to the living inhabitants of these cities had almost doubled in twenty-eight years. If this increase is maintained until the year 1910, there will be an average of 80 deaths in each city in that year to every 100,000 living persons. According to the combined statistics of these seven cities, there were 664 deaths per 1,000,000 inhabitants in 1898. Extending these figures to the 75,000,000 inhabitants of the whole country shows that there must have been 49,800 deaths from cancer in the United States in 1898, and that at the present moment there must be about 100,000 victims of the disease within our borders. The greater number of victims are attacked in the prime of life.

The seven cities above referred to are New Orleans, Philadelphia, Boston, New York, San Francisco, St. Louis, and Baltimore.

Removal of the Cancerous Uterus.—T. H. Pound²¹ states that removal of the cancerous uterus is both justifiable and proper in carefully selected cases, and for the following reasons: first, the immediate mortality does not forbid it; secondly, recurrence is not more rapid than after other operations for cancer; and lastly, death after recurrence is not attended with so much suffering, the rectum and bladder being seldom perforated.

Cancer Infection.—J. Bland Sutton,²² in an article on this subject, lays particular stress on the fact that in a certain proportion of cases in which extensive operations are performed in the hope of eradicating the cancer, the damage inflicted on the surrounding tissues really makes them receptive for carcinomatous particles which may be scattered over their wounded surfaces from cut lymphatics, crushed lymph glands, and venules stuffed with cancerous material. In operating on cancer it is well to keep wide of the disease and to avoid fouling the wound by unnecessarily dividing the primary tumor or cutting the lymph channels.

Treatment of Anuria due to Cancer of Uterus.—G. Chavannaz²³ considers nephrostomy the operation of choice in the treatment of anuria in cases of cancer of the uterus. He has performed the operation once. Five and a half months later the patient's condition was good. Chavannaz states that the operation may be done with local or general anesthesia, or with none if the patient is comatose. He advises a free lumbar incision. The operation should be performed upon the larger kidney, and, if they are of equal size, preferably upon the right, as its lower position makes it more accessible. Unilateral nephrostomy is usually sufficient, but if the wall of the kidney opened has been so greatly thinned that it seems improbable that the secretion of urine will be rapid and abundant, it may be necessary to operate upon both. After the fistula is established a urinal should be worn.

Uterine Neoplasms.—W. R. Williams⁹ states that of 13,824 patients of both sexes, with primary neoplasms, consecutively under treatment at four large London hospitals, 2,649

were of uterine origin, or 19.2 per cent; next in order came the mammae with 17.5 per cent; then the skin with 9.4 per cent; then the stomach with only 2.6 per cent. With regard to the sex of these patients, 9,227 were females; in 28.7 per cent the uterus was affected, mammae in 26 per cent, ovaries in 8.7 per cent, and the stomach in 1.4 per cent. Of the above list 7,297 were cancer; of these 4,628 occurred in women, the uterus being the seat of origin in 34 per cent, mammae in 40.3 per cent, skin in 4.1 per cent, and the stomach in 2.8 per cent. From a study of the cancer mortality of England and Wales for the year 1897 he finds that among females the uterus was affected in 23.5 per cent of the cases, the mammae in 15.5 per cent, the stomach in 13.3 per cent, the liver in 13.2 per cent.

Sarcoma of the Uterus.—J. M. Williamson¹⁰ reports a case of this variety occurring in a woman 80 years old. The patient was treated locally for one year, when she died. At autopsy the uterus was found inverted; its mucous surface, which lay next the vaginal wall, was extensively covered with new growth, in some places to the thickness of an inch, and a large secondary deposit occupied the left fornix of the vagina. Out of 9,133 cases, collected by Gessner, of uterine tumors, there were only 18 cases of sarcoma.

Keiffer³² has removed from a woman 55 years of age an intrauterine polypus which was fibroid in character, but which had undergone in part sarcomatous degeneration. It showed all stages of degeneration, round, spindle, and giant cells, and myxosarcoma. After three weeks, involution of the uterus to normal size had occurred.

Hysterectomy for Cancer of the Uterus.—Ricard¹¹ approves of total abdominal hysterectomy for incipient cases of cancer of the uterus and for those of moderate extent. For severe and extensive cases palliative operations are indicated, and under this head the writer includes vaginal hysterectomy, which is easy of execution, may remove a growth confined entirely to the cervix, but leaves infected glands untouched.

Richelot¹¹ declares himself a strong partisan of vaginal hysterectomy. Of his 95 cases, 6 have died, and 17 have been greatly benefited or apparently absolutely cured, having lived from three and a half to twelve and a half years since the operation.

Epithelioma of Vagina.—Adenot¹² presents an account of a primary epithelioma of the vagina. It occupied the upper part of the posterior vaginal wall. In size and shape it resembled a half-dollar. The growth of the tumor was slow, contrary to the usual rate of evolution. Three years after simple excision of the growth there had been no recurrence.

Uterine Fibroids.—V. Pauchet⁸ holds that uterine fibroids giving rise to any symptoms whatever should be operated upon. He removes the tumor alone when a single subperitoneal growth exists, or there is a uterine polyp emerging from the cervix. All other cases he considers as requiring abdominal or vaginal hysterectomy. Of 70 cases of fibroids which he has seen, he

operated upon 61—3 by enucleation, 27 by vaginal, and 31 by abdominal hysterectomy. The only 3 cases which he refused were complicated by phlebitis, cancer, and diabetes respectively.

Removal of a Submucous Fibroid.—James Braithwaite²¹ reports a case in which he removed a submucous fibroid by section of the uterus. A median incision was made in the abdominal walls, the lower end being nearer the pubes than usual in abdominal sections. The uterus was brought up to the wound and its rounded anterior surface came well into view. It was packed round with sponges to protect the peritoneum, and a rubber tourniquet applied tightly round the cervix, so that the operation was almost bloodless. A central perpendicular incision in the uterine wall, about two inches in length, exposed the attached surface of the tumor, which was recognizable by its glistening white color. The incision was prolonged a little, so as to open the cavity of the uterus below the tumor. The tumor was pushed out by the finger with its mucous surface entire and removed. A drainage tube was then passed from the uterine cavity into the vagina, and the wound closed by strong catgut sutures, three to the inch. These all missed the mucous surface of the interior except two, which were passed just within the cavity to loop up tags of the capsule of the tumor. The tourniquet was then removed and hemorrhage from the needle pricks stopped by sponge pressure. There was no bleeding or oozing from the wound itself. The abdominal wound was closed as usual. The patient has made an uninterrupted recovery. The drainage tube was removed from the vagina in twenty-four hours.

Tuberculous Peritonitis.—W. W. Cheyne⁶ divides tuberculous peritonitis into three varieties: 1. The peritoneum may be studded with tubercles of varying size, some small, grayish, and transparent, others larger and tending to become cheesy. The tubercles are scattered over both visceral and parietal peritoneum. There are patches of fibrinous exudation. The peritoneum is hyperemic. There is more or less fluid present in the abdominal cavity. The above conditions may be localized. 2. In a second set of cases the formation of adhesions and fibroid induration of the omentum and mesentery are the marked features. The intestines are bound together; the adhesions may be very firm and lead to constriction of the gut, which may cause partial or complete obstruction. The omentum is early involved; the two layers become matted together and rolled up so as to form a sausage-shaped mass lying about or above the level of the umbilicus; it is generally adherent to the abdominal wall at this point. The mesentery also partakes in the changes and draws the small intestine up and to the right; this is the reason fluid so often collects in the left side of the abdominal cavity. 3. A third condition is more grave. The tubercles tend to run together and form large masses which undergo caseation; the mesenteric glands are enlarged and caseous. This condition is especially associated with intestinal

ulceration, and the intestine is usually thinned and may even perforate. Collections of fluid are frequently present, mostly encapsulated and multiple, and not uncommonly purulent. These foci of pus may open externally or perforate the gut, or may perforate both the abdominal wall and the intestine, forming a fecal fistula. Generally the small intestine is perforated and pretty high up, so that the patient starves to death in a short time. This more often occurs in children.

Tuberculous peritonitis generally occurs secondary to tuberculosis of some other portion of the body, but may be primary. It occurs most frequently in children or young adults.

As regards the sex, a very curious result is obtained, according as we take the statistics of cases operated or of cases examined post mortem. Of those operated, the great majority of cases occur in women, while, on the other hand, those examined post mortem show the majority of cases to be in males.

The symptoms come on usually insidiously; in some cases they may develop rapidly, and it even has been mistaken for typhoid fever. The patient has a feeling of malaise and weakness, headache; suffers from thirst, sleeplessness, night-sweats. She soon loses her appetite and occasionally vomits. The bowels are irregular; they may be constipated or loose, or there may be alternating constipation and diarrhea. Sooner or later pains come on; these may be shooting or dull. The temperature is variable, but there is generally an afternoon rise. Her abdomen begins to swell, and the pain grows worse, and there is dyspnea. The skin is pale, sallow, and dry.

On examination we find the following condition. Where there is much free fluid present the abdomen is distended, somewhat flattened at the sides, and the ribs everted. The abdominal wall is stretched and shining, with big veins running over it, and it is usually so tense that nothing can be felt through it. The pain is not generally marked in these cases. Where the fluid is less, the thickened omentum is readily felt in the form of a tumor-like mass of a sausage shape, generally running more or less transversely across the abdomen about or just above the level of the umbilicus, the omentum being thickened and rolled up by the fluid and the distended intestines, and pressed against and becoming adherent to the abdominal wall. The percussion note is uncertain and atypical, fluctuation is not distinct, and the fluid as a rule only changes its position slowly, owing to having to make its way among the adherent intestines. The fluid may be encapsulated and therefore not move. The distension of the abdomen is uneven, due to the irregular distension of the gut with gas.

The prognosis of cases appropriate for operation is favorable. In the first class of cases the prognosis is the most favorable, and next in the second group. If improvement does not follow under medical treatment in a reasonable time, say in four to six weeks in acute cases and from four to six months in severe cases, the abdomen should be opened whether there is ascites or not. The operative procedure is very simple in most cases.

Where effusion is present without adhesions, it simply consists in opening the abdomen in the middle line below the umbilicus, allowing the fluid to run out, aided by turning on the side or by means of sponges, and stitching the wound up again. Where adhesions are present, care must be taken in opening the abdomen not to injure the intestines, and if the adhesions are firm it is better to leave them alone and close the wound. In the dry, fibrous form, unless the intestines are becoming kinked or bound down by adhesions, it is seldom advisable to try to separate the coils, on account of the risk of weakening the wall of the bowel. If obstruction is present, it must be relieved by an anastomosis between the coils above and below. Drainage does not appear to be of any advantage. Whether a primary focus, such as a tube or appendix, should be removed depends upon the extent of the peritonitis. If the peritonitis is limited to the immediate vicinity of the focus, then the removal of the primary source is very important.

Diagnosis of Tuberculosis of the Kidney.—Noble and Babcock⁷ say that though the diagnosis of tuberculosis of the kidney has been considered sufficiently obscure to cause the average physician to be very doubtful of his abilities in this direction, yet it has been their experience that the cases which have come under their notice have all been so far advanced that the ordinary methods of diagnosis were sufficient for arriving at a conclusion. In all of the cases pain, tumor, hectic fever, pyuria, and bladder symptoms have been present to so marked a degree that but little skill has been required to make a diagnosis. They report a case in detail because of the employment of a method of diagnosis which has been recommended for cases obscure in character or when seen at an early stage. This consists in securing urine by catheterization of the ureters with sterile catheters, and then injecting the sediment from the urine into guinea-pigs. The urine obtained from a tubercular kidney and containing tubercle bacilli will infect guinea-pigs, whereas that free from tubercle bacilli will not. The result corroborates the claims of Reynolds, of Boston, concerning the value of the method. Tuberculosis of the kidney is not a rare disease, and any method which will add to the certainty of diagnosis of the malady is deserving of our attention. The present tendency is to permit these cases to go on until the patients are in bad general condition or *in extremis* before they are brought to the surgeon.

The personal history of the patient, a woman of 30, reveals no ailments except those common to childhood. She was admitted to the Kensington Hospital for Women May 23, 1899, having at that time suffered for four months with frequent and painful micturition that had progressively increased in severity. At times there had been right lumbar pain extending to the thigh. The urine at this time was acid, with a specific gravity of 1012, and contained albumin and a very considerable amount of pus. With the cystoscope the bladder was found to be inflamed, with several small ulcers near the

right urethral orifice. This was very patulous, being at least four times the normal diameter. Despite repeated examinations, the left urethral orifice was not found. Under bladder irrigations the vesical symptoms subsided, but the pyuria persisted, until, after nine weeks, the pus formed from one-eighth to one-fifth, by bulk, of the urine. The average quantity passed at this time during twenty-four hours measured forty-eight ounces. The course of the fever during the first month under hospital observation was irregular, but the evening rise rarely exceeded 100° F. Then the fever became more marked, with an evening exacerbation that averaged during the fourth, fifth, and sixth weeks 101° F., and that increased during the next three weeks to 102° F., and frequently reached 103° and 104° F. During this time the patient lost weight and strength, and had repeated attacks of abdominal pain, particularly in the right renal region. Urethral catheterization continued unsatisfactory, as only the right ureter could be catheterized. The urine collected from this ureter was always alkaline and contained much pus and had a specific gravity as low as 1006.

About the eighth week a large mass became palpable on the right side of the abdomen. A number of microscopical examinations failed to show tubercle bacilli in the urine. It was, therefore, determined to inject the urinary sediment from each kidney into separate guinea-pigs. A urethral catheter was accordingly introduced into the right ureter June 6, 1899, and in sixty minutes about one ounce of purulent urine had collected from this kidney. As it was not possible to catheterize the left ureter, the bladder was irrigated with salt solution. The urine collecting in it from the left ureter was saved. After twenty minutes one and one-half ounces were drawn—which doubtless contained a considerable percentage of salt solution. The separate urines were placed in sterile tubes, sealed with cotton stoppers, centrifuged, and placed upon ice. Three guinea-pigs, having an average weight of about 500 grammes, were taken. About 1.5 cubic centimetres of the separate sediments were injected into the abdominal walls of two of the pigs June 6, 1899. The third animal was not injected and served as a control. Considerable local reaction, with redness, tenderness, and decided swelling, occurred at the seats of inoculation and slowly subsided. The patient's right kidney having in the meantime been removed and found to be extremely disorganized by a tubercular process, the guinea-pigs were permitted to live much longer than is usually necessary. Upon September 18 the guinea-pig that was injected with urine from the left kidney, having been distinctly ill for some time, was killed. There was an open wound at the seat of inoculation, surrounded by a moderate fibroid induration. The inguinal lymphatics were much enlarged and distended with a thick, cheesy material. The cervical, axillary, and mediastinal glands were also involved, and there were marked and typical tubercular deposits in the spleen, lungs, and liver. Stained preparations from

the necrotic foci showed the tubercle bacilli. Upon September 22 the second pig (the one injected with the urine from the right kidney) was killed. This animal, although apparently not in health, did not appear so ill as did the first. A small, granulating wound was present at the seat of the inoculation. The inguinal glands were not enlarged (the injection having been made rather high over the lower thorax), but the axillary and cervical glands were enlarged. Necrotic collections were found in the anterior mediastinal glands, which showed, upon staining, the characteristic bacilli. Tubercles were present in the spleen, and there were also small tubercles in the lungs and liver. The entire process, however, was milder than that occurring in the first pig. The control guinea-pig has gained in weight and remains healthy. The guinea-pig forms such a delicate reacting medium to the tubercle bacillus that it is not improbable that the tuberculosis of the second pig was produced by bacilli entering the bladder through the right ureter. In using a test of such delicacy it is obvious that the urine from each kidney should be secured, whenever possible, directly from the ureter or renal pelvis. The patient's condition becoming such that it was deemed unwise to await the result of the inoculations, upon July 24 a right nephrectomy was performed. A large, suppurating tubercular kidney was removed through a lumbar incision. There were two ureters, one of which was much infiltrated and its lumen filled with pus. The incision was not extended forward in order to perform a complete ureterectomy, because of the general condition of the patient. Gauze drainage was employed because of the diseased condition of the ureteral stump. The quantity of urine passed during the first twenty-five hours after operation was fourteen ounces. It contained considerable albumin and much pus. During the second twenty-four hours twenty-three ounces were passed. Gradually the quantity increased until the average daily excretion became from forty to sixty ounces. The wound suppurated and pus was discharged. On the tenth day after the operation the patient's appetite returned and her strength increased. All her pain disappeared and she was discharged in good general condition (but with a sinus) at the end of seven weeks. At the present time the sinus is open, discharges some pus and considerable urine. This evidently is discharged from the bladder, regurgitating through the very patulous ureter. The kidney increased 15 centimetres in length and 6.5 centimetres in breadth. The capsule was thickened and adherent, and the renal surface was lobulated. On section the bulk of its substance was found to be replaced by a reddish or yellowish cheesy material. But a single pole retained the appearance of normal kidney structure, and even this was infiltrated with small tubercles. Under the microscope the gross appearances were confirmed. Much of the renal substance consisted of a granular necrotic debris unrecognizable as the kidney. In those portions of the sections that had not had their original structure completely obliterated, many tubercles in early or

more advanced stages of development were found. Even sections from the single pole of the kidney, in portions where no lesions were noticed, revealed under the microscope numerous beginning infiltrations. No more delicate or reliable method of determining the presence of living tubercle bacilli has yet been discovered than that dependent upon the injection of susceptible animals. Fluids containing tubercle bacilli in numbers so small that they cannot be found by staining methods readily induce tubercular lesions when injected into proper animals. The chief objection to this method is the time required. When the injection is made subcutaneously, or even intraperitoneally, a delay of from four to six weeks is usually necessary. A somewhat shorter time may suffice when the material is injected into the anterior chamber of a rabbit's eye. In using the method for the diagnosis of early renal tuberculosis it is very obvious that all sources of contamination should be avoided. One could scarcely be assured of the absence of infection from an imperfectly cleansed or a diseased bladder in using the Harris instrument, and, while much less probable, contamination is possible even when using the urethral catheter. While the method by injecting urinary sediment requires time and skill sufficient to use the urethral catheter, if we may judge by the results from the few cases that have been reported, it is the most reliable single procedure yet devised, and, pending the development of a better method, it seems to deserve a much more extended trial than it has yet received.

The Prevention of Uterine Disease Before and After Puberty.—W. Gill Wylie²⁷ states that the family physician can do much to influence and benefit the unborn child by taking charge of a delicate woman as soon as she becomes pregnant, and so regulate her diet and exercise and mode of life that her physical condition will be much improved. Up to the age of 9 or 10 years, girls and boys should be treated on the same general principles; they should be allowed the same freedom, with proper restrictions as to their food, exercise, etc., and as nearly as practicable kept in good general health. They should not be permitted to over-exert themselves mentally or be subjected to excessive mental excitement by contact with older children. Chorea is a very common manifestation among girls of this age; these patients can be entirely cured of their symptoms, in a large number of cases, by practically circumcising the hood of the clitoris. If we permitted our young girls to lead quiet, healthful lives and would not try to educate them too early to act like grown people, they would develop better physically. After puberty their minds can be better developed.

Generative organs which have remained undeveloped or have only partially developed readily become the seat of disease. Catarrhal troubles are apt to attack the organs because the circulation is imperfect. These patients may have a leucorrhea before puberty. When menstruation begins there

will be pain at the beginning or coming on later. These girls suffer from anemia, uterine polypi, and hyperesthesia of the mucous membrane of the uterus. When these patients become pregnant and the labor goes to term it is almost certain that a tear will occur, with its train of evils.

In many of these cases not only the uterus but also the ovaries are imperfectly developed and the function of ovulation is imperfectly performed. This results in many cases in the production of the so-called "microcystic ovaries," and on this account thousands of women have had their ovaries removed when there was no necessity for it. There is a simple functional disturbance and there is no necessity for removing them. Give her proper general and local treatment and these cysts will cease forming, ovulation will become normal and impregnation possible. As for curing dysmenorrhea or excessive uterine hemorrhage by taking out the tubes and ovaries, a method of treatment which is even nowadays taught, that is entirely uncalled for. Dysmenorrhea or any uterine hemorrhage, except from cancer, can be cured usually by simple treatment and without the removal of any organ whatever.

The local examination of young unmarried girls should be avoided, if possible. When such an examination becomes necessary make it a rule to make it under ether, and prepare yourself beforehand to perform at the same time any *simple operation* which may be indicated, such as curetting, or the removal of uterine polypi, or freeing the hood of the clitoris, as already described. In cases of violent dysmenorrhea, where the patient has become accustomed to take morphine or gin to relieve her pain, resort to free division of the os and put in a drainage tube for ten days or a longer time.

Women, as a rule, are very negligent as regards the regulation of their bowels, and young women are especially so. Their constipation is due to their sedentary habits, to the fact that they do not drink enough water, and perhaps to shyness about visiting the closet when there are men in the household. The movements of the bowels occur at irregular hours, and gradually these girls become habitually constipated. The impaction of feces and accompanying straining at stool is a more important factor in the production of uterine displacements than falls or any form of physical exercise that a woman can take. More good can be done by correcting the habit of constipation, or rather preventing its formation, than by anything we can do for her during menstruation.

If a girl's general health is kept good, and she is allowed or taught to take a normal amount of free exercise, and does not wear corsets or restrain by pressure the lower ribs and abdominal muscles until she is 18, corsets will do little harm.

In girls under 16 or 17 years of age, with rare exceptions, the disorders of menstruation can be cured by freedom from enforced study or indoor life and mental and emotional excitement, with plenty of good wholesome food, outdoor exercise,

and diversion by contact with children as young or younger than themselves.

Beef-gall Enemata.—F. C. Ameiss¹⁷ states that in all cases of incipient constipation ox-gall enemata are of undoubted efficacy; and even in protracted cases, where hope has almost fled, but where evidences of strangulation are not unequivocally manifested, it should never be omitted.

A Case of Janiceps.—A. Macphail¹⁸ reports a case of double-faced monster. The faces were rotated at right angles with the antero-posterior plane of the spinal cord. One face was fully developed, but the other was deficient in development. The eyeballs were merged together in a triangular gap, the nose represented by two fleshy elevations, and the mouth was deeply placed between the ears. Both bodies had female genitals. The four extremities were well grown.

Monstrosity.—A. Caracache¹⁹ gives a description of an anencephalus without spinal fissure and with bifid face. The cleft divided the face down to and through the upper lip and roof of the mouth.

Abscess of Ovary.—Keiffer²⁰ reports a case of gonorrheal abscess of the ovary which gave no symptoms during pregnancy except slight pain in the side, and which was successfully removed after a normal labor.

Endometritis.—Walton²¹ writes that inflammation of the uterine mucosa is always due to a microbe and is always accompanied by congestion. The tenacity of endometritis is largely dependent upon the structure of the mucous membrane, which renders destruction of the bacteria difficult, and demands energetic treatment, including removal of the diseased mucosa. He advises forcible dilatation of the cervix, curettage, and anti-septic intrauterine medication, which, if not destroying the germs, at least sterilizes their habitat and interferes with their growth. Forcible dilatation is favored because it facilitates access of the curette or medication; by distending the uterine wall and tubal orifices it permits drainage of these organs, allows the intrauterine medication to enter the oviducts and thus prevents reinfection of the denuded uterine surface. By producing rupture of the muscular fibres or their temporary paralysis it aids in diminishing congestion of the uterus and connected organs. By relieving painful compression of nerves it arrests the spasmodic condition of the utero-ovarian organs and suppresses pain. By relieving the return circulation, forced dilatation of the cervix arrests intrauterine hemorrhages, whether due to retained placenta, fibroids, or polypi. This result is aided by curettage, which removes vegetations and granulations of the endometrium, etc.

Atresia Vaginæ.—W. E. Fothergill²¹ reports the case of a woman 21 years old whose external genitals were normal, as were her breasts. There was no opening visible or palpable in the hymen. On rectal examination a firm body could be felt having the position, form, and size of the cervix uteri. Care-

ful bimanual examination failed to reveal the presence of any uterine body, tubes, or ovaries. The patient complains of pelvic pain and discomfort once a month.

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DISEASES OF CHILDREN.

Acute Pneumonia.—W. L. Harris ¹ writes that the treatment of broncho-pneumonia is essentially that of the disease it complicates. Every effort should be made to sustain the child by good nursing, proper food, and stimulating and tonic drugs. Strychnia in solution should be given from the start every three or four hours, and later on it may be given oftener if needed. Brandy or whiskey may be given with good effect in the majority of cases. Avoid, as far as possible, the use of opium, ipecac, and all drugs depressing to the heart or respiration. Incessant cough and troublesome nervous symptoms may be controlled temporarily by a single dose of codeine or phenacetin. The temperature does not require much attention and seldom does as much harm as the drugs given for its relief. Cold packs to the chest or the cold bath are very efficacious in reducing the temperature. It is questionable whether the oiled silk jacket does any good—at least it does no harm. In extreme cases, where there is cyanosis and short, jerky respiration and blueness of the nails, hypodermatic medication with strychnine, whiskey, ether, or caffeine will be required.

Lobar pneumonia is self-limited and requires almost no treatment in many cases, except careful nursing and judicious feeding. The author, however, recommends some form of stimulation from the beginning in every case. Strychnia is the drug to use. The temperature and nervous symptoms can best be controlled by hot mustard baths and hot packs. Besides strychnia and whiskey we may use sparteine for the heart, but should be careful in the use of digitalis, as it is a dangerous drug in pneumonia. Codeine in small doses will allay cough and give the patient rest and sleep. Expectorants should be avoided.

Associate Infections of Scarlet Fever.—W. J. Jaques ² believes that in scarlet fever bacilli are present which multiply

in the human body to a limited extent, and that the toxin produced by them facilitates secondary infections of all kinds. The physiologic resistance of the patient is lowered in direct ratio to the virulence of the contagion. The Klebs-Löffler bacilli and pus germs infest the mouth and may remain there without causing disease. When from any cause the physiologic resistance becomes lowered, they invade the tissues. Thus, if a child contract scarlet fever and other germs are present in the mouth, it is highly probable that secondary infection will follow. When the Klebs-Löffler bacilli are comparatively scarce, the pus germs are almost always present and cause the most painful and lasting anginas. The inflammation also extends into the middle ear and injures the delicate bones of the auditory apparatus. During the season of its prevalence influenza may often be found associated with scarlet fever, appearing either as primary or secondary infections. The same can be said of measles, mumps, and other diseases of childhood.

Cardiac Overstrain in the Young.—F. J. Poynton,³ in the course of some remarks, says that at the age of puberty heart strain is not most clearly manifested. It is found more certainly in those athletes who are passing their prime, who by force of circumstances are unable to maintain the necessary training, and who already have a past history of severe physical exercise. Nevertheless, though in the earlier years any positive results may be few, their discovery is of great importance. There seems to be, even among authorities upon diseases of the heart, a lack of precise knowledge upon the exertion value of the various athletic pursuits. The author has known a weakly boy with a feeble heart forbidden to play cricket and football, but allowed to play racquets. Again, one of our greatest authorities upon these questions, writing of lawn tennis and hockey, alludes to them as girls' games to which the more weakly men will be drawn by a process of natural selection, giving an erroneous idea of the exertion value of these games. There are certain conditions—such as organic heart disease in a rheumatic boy—which preclude any participation in the violent games of our schools; in other cases it is customary to curtail rather than stop all exercises, and it is in these cases that care is needed.

Cerebro-spinal Symptoms in Influenza in Infancy.—Thompson S. Westcott⁴ reports and describes two cases in which cerebro-spinal symptoms suddenly appeared in the course of influenza. One patient was 4 weeks old and the other 9 months. The discovery of Pfeiffer's bacillus as the exciting organism of influenza, says the author, has been of such recent date that the relation of this organism to the complicating lesions of the disease has not been completely worked out. Sufficient has been done, however, to indicate that Pfeiffer's bacillus, under certain conditions, possesses pyogenic properties very much like those of the Eberth bacillus, and it will be found, according to the testimony of Arzée, Huysmann, Mail-

lard, and Revilliod, that the purulent forms of meningitis are the most common. Pfuhl in 1894 described the postmortem findings in 3 cases of purulent cerebral meningitis in which he demonstrated the bacillus; and four years later E. Fränkel reported 2 cases of cerebral meningitis in infants of 10 weeks and 9 months, in which the bacillus was found in the purulent exudate. The 2 cases reported by the author seem to correspond to the condition described, especially by French observers, of pseudo-meningitis grippalis, which simulates meningitis in every particular, but either ends in recovery or, after death, shows, at the most, hyperemia of the pia and brain or a permeation of those parts with serum. In the 2 cases described the author is convinced that the hypodermatic administration of digitalin and atropine was of the utmost value, and shows the advantage gained by this rapid method of medication.

Chronic Nephritis and Arteritis in the Young.—N. E. Brill and E. Libman⁵ contribute an article upon this subject which may be summed up as follows: 1. In the case presented, the occurrence of a very advanced primary chronic interstitial nephritis occurred at the age of 14 years. 2. It is evident that there was a tendency in the family to the development of chronic interstitial nephritis, this having taken place in the three eldest children. 3. There were extensive and marked arterial changes present. 4. The hemorrhagic diathesis, and especially the occurrence of a large hemorrhage in the mesentery, were features in the case. 5. Calcific deposits were present in the liver. 6. The case draws attention to the latency of these cases of chronic nephritis in children. There is no doubt that some of them have been regarded as instances of diabetes insipidus. The necessity of a careful and continued observation of the heart and vessels in such cases is apparent. Others are treated for a long time for anemia without its cause being detected. Still others do not present themselves for treatment until the fatal termination is close at hand, the patients having no marked symptoms. The fact that chronic nephritis may run so latent a course and may occur at any age should lead us to pay as much attention to the examination of the urine in children as in adults.

Cold Baths in Typhoid Fever.—M. F. Glénard⁶ reaches the following conclusions in regard to this treatment: Typhoid fever in childhood is an exceedingly grave disease; when treated by internal medication alone, the mortality is 15 per cent. This rate falls to 2.5 per cent by systematic treatment with cold baths. It is about 11 per cent under mixed treatment, in which the cold bathing is merely a succedaneum of medication. With this mixed treatment typhoid fever is still a grave disease, and in cases of severe epidemics or when the patient is under 5 years of age the mortality is as high as in medical treatment only. The prognosis is as uncertain, the complications are as liable to occur, even in benign cases, the duration is as long, the convalescence as tedious, and the sequelæ often permanent. With systematic treatment by cold

bathing the rate of mortality remains very low, the prognosis is good from the beginning, the complications are reduced to a minimum, convalescence is short, and health is completely restored. Collapse has not been noticed in cases treated systematically in this way, any more than in pneumonia thus treated. Collapse is caused, not by too cold or too prolonged cold baths, but by too hot baths, or by cold baths given at too advanced a stage of the disease unaccompanied by medication addressed to the condition of the heart. *Systematic* cold bathing in typhoid fever has fulfilled all the hopes to which its adoption gave rise.

Croupous Pneumonia.—J. Howell Way¹ states, in the course of some remarks on this subject, that while it is now a generally accepted theory that croupous pneumonia is a specific infectious disease with local pulmonary lesions produced by the systemic invasion of micro-organisms which multiply after the manner of a ferment, yet bacteriologists do not seem to have definitely settled upon the precise form of organism or bacteria which incites the disease. Whether the inciting germ be always *sui generis*, or whether pneumonia can be induced by more than one micro-organism, or whether certain micro-organisms apparently differing in appearance and behavior, but all effective, may not be identical, though in different forms of growth or rather different stages of development, is not determined; but the observations of competent pathologists incline to the belief that the pneumococcus of Fränkel is the specific germ. A peculiar fact in connection with this is that, according to the same authority, this micro-organism is normally present and flourishes in the saliva of healthy human beings. It is also said to be frequently associated with cerebro-spinal meningitis. All of which tends to give a measure of support to the view that the "germ theory" of pneumonia, as well as for disease in general, while it is accepted as being at present the best etiological solution of many pathological questions, must not be held too tenaciously and to the exclusion of investigation along other lines.

Dermatitis Gangrenosa Infantum.—H. Judson Lipes⁷ writes that gangrene of the skin is fortunately not often seen among children. Gangrene due to chemical agents includes lesions produced by caustics, vesicants, and medicinal agents. Carbolic acid in poultices may be cited as a frequent cause of gangrene. Péraire has noted 5 cases resulting from the application of a one per cent carbolic acid solution to the extremities of children. Gangrene may be due to physical agents, such as burns, frost bites, and compression. Gangrene due to vascular obliterations, including arterial embolism, infectious arteritis, and thrombosis, is rarely met with, though cases occurring among children have been reported. In the dyscrasiæ, such as diabetes, the lesion does not differ from some cases of spontaneous gangrene, except that the diagnosis is less favorable. But there is a specific diabetic gangrene, in a certain sense, since all accidental grave or even slight wounds,

either from bruises, cuts, or erosions, especially on the feet or lower part of the thigh, become easily gangrenous. Gangrene may be due to intoxication, such as that arising from use of ergot. The last division of gangrene is that due to nervous affections. Raynaud's disease is rare among children, but another variety of this division, *dermatitis gangrenosa infantum*, is almost entirely limited to children. It is seldom seen outside of institutions except in severe epidemics. It is much more common than the spontaneous or primary forms, and usually follows varicella, less frequently vaccinia, measles, etc. If the onset of the gangrene occurs while the varicella lesions are still present, it begins upon the head and upper parts of the body. If after most of the varicella lesions have cleared off, it is most apt to appear about the buttocks and abdomen. When occurring after vaccinia, it does not start from the vaccine vesicles, although it usually begins on the vaccinated arm. The primary form usually occurs among poorly nourished children.

Differential Diagnosis between Chronic Joint Disease and Traumatic Neuroses.—The epitome of some remarks on this subject by Reginald H. Sayre⁶ is as follows: 1. A neurosis is apt to follow injury sooner than is disease of the joint. 2. The temperature is usually subnormal in a neurosis and elevated in inflammation of a joint. 3. The local temperature is usually much lower in case of a neurosis than in disease of a joint. 4. Atrophy progresses more rapidly after injury to a nerve. 5. True muscular spasm is not present except in joint disease. It may be simulated, however. 6. True night-cries are pathognomonic of joint disease. 7. The appearance of the patient, if indicating a disordered nervous system, may aid in the diagnosis.

Digestive Troubles and Rhino-pharyngitis.—E. C. Avignat⁷ says that during the course of a rhino-pharyngitis, whether accompanied or not by adenoid growths, we frequently observe gastro-intestinal troubles which are certainly allied to the former affection, for when this is cured the dyspepsia disappears. It does not follow that every case of dyspepsia is due to rhino-pharyngitis, nor that every case of rhino-pharyngitis is sure to be accompanied by digestive disturbances. The author's method of treatment in chronic cases consists in irrigations and in injections of oil containing resorcin. He has abandoned mentholated oil because of the pain and the irritation which it causes. Resorcin is antiseptic without being caustic or toxic. Vaseline does not dissolve it, therefore he uses olive oil: sterilized olive oil, twenty grammes (five drachms); resorcin, one gramme (fifteen grains); essence of peppermint, two drops. The oil is warmed on a water bath, and the resorcin stirred in with a glass rod until soluble, and then sterilized in a Papin's digester. The preparation is injected into the nostrils, the child being in a recumbent position; the oil rapidly reaches the rhino-pharynx and falls thence into the throat, so that the mucosa of the nose, cavum, phar-

ynx, and tonsils receive the application, and the good results are soon shown. This treatment should be applied night and morning for a fortnight, then suspended and a mentholated ointment substituted for several days, and then be resumed, to be stopped only when the rhino-pharyngitis has completely disappeared.

Diphtheria.—A. Jefferis Turner,¹⁰ of Brisbane, Queensland, has for five years used antitoxin in the treatment of diphtheria in the Children's Hospital, and says that the results are nothing short of marvellous. Records kept during five and a half years previous to the antitoxin period show a mortality ranging from 39.7 to 46.6 per cent. Those of the antitoxin period are as follows: *Small doses*—January, 1895, to November, 1895 (eleven months), mortality 25 per cent. *Larger doses*—November, 1895, to September, 1896 (ten months), mortality 11.6 per cent; September, 1896, to December, 1897 (fifteen months), mortality 9.8 per cent; January to December, 1898 (twelve months), mortality 15.6 per cent; January to August, 1899 (eight months), mortality 9.4 per cent. He urges injection of the remedy as soon as a diagnosis is made, and frequently, in doubtful cases, before a positive diagnosis is possible. In very early cases an ordinary dose of 600 or 1,000 units is enough. But in cases of long duration, presenting extensive membrane or showing symptoms of toxemia, large and repeated doses may perhaps avert a fatal result; 4,000 to 6,000 units should be administered at once, and perhaps an additional 2,000 or 3,000 units within the next twenty-four or forty-eight hours. About twenty-four or forty-eight hours usually elapse before improvement begins, which then is rapid. The author uses Prof. Behring's preparation and says that there need be no fear of administering an overdose.

F. Villy¹¹ gives statistics in regard to the use of the antitoxin treatment of diphtheria in hospitals of the Metropolitan Asylum Boards of London and in his own practice. Table I. shows the reduction in general mortality and also in the mortality among laryngeal cases and those in whom tracheotomy was performed. The increase in the number of cases is due to the provision of greater hospital accommodation.

TABLE I.

Year.	Total number of cases.	Per cent mortality.	Total of laryngeal cases	Per cent mortality.	Total of tracheotomies.	Per cent mortality.
1894	3,042	29.6	466	62.0	261	70.4
1895	3,529	22.5	543	42.3	255	49.4
1896	4,175	20.8	516	29.6	212	41.0
1897	5,459	17.5	491	30.9	264	40.5
1898	6,372	15.5	654	34.4	313	38.0

TABLE II.
POST-SCARLATINAL DIPHTHERIA.

Year.	Total number of cases.	Total deaths.	Per cent mortality.
1892	217	95	43.8
1893	204	120	58.8
1894	220	74	33.6
1895	408	58	14.2
1896	765	36	5.1
1897	796	80	3.7
1898	661	24	3.6

The above table illustrates the reduction in total and percentage mortality among cases of post-scarlatinal diphtheria.

TABLE III.

Result of antitoxin treatment according to the day of disease upon which it was begun:

Day of Disease.	1st.		2d.		3d.		4th.		5th and after.		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1897	12	0	110	6	104	12	100	19	181	39	507	76
1898	37	0	157	8	146	21	138	25	151	34	629	88
Total	49	0	267	14	250	33	238	44	2	73	1136	164
Mortality per cent.	0		5.2		13.2		18.5		21.9		14.4	

TABLE IV.

Influence of antitoxin treatment in the development of paralysis, excluding cardiac paralysis:

(A) CASES TREATED WITH ANTITOXIN.

Day of injection.	Total.	Total cases of paralysis.	Percentage of paralysis.	Deaths from paralysis.
1	85	4	4.7	0
2	361	34	9.4	0
3	419	66	15.7	4
4	422	85	20.1	8
5	713	175	24.4	8
and later	—	—	—	—
TOTAL (A)....	2000	364	18.2	20

B. CASES NOT TREATED WITH ANTITOXIN (during 1894).

Day of admission.	Total.	Total cases of paralysis.	Percentage of paralysis.	Deaths from paralysis.
1	29	3	10.3	0
2	100	12	12.0	1
3	106	10	9.4	0
4	73	4	5.4	0
5	144	20	13.8	2
and later	—	—	—	—
TOTAL (B)....	452	49	10.8	3

Diphtheria, Complications of.—I. A. Abt¹² writes that septic diphtheria is not, strictly speaking, a complication of diphtheria, but is usually due to a profound intoxication with diphtheria poison. Some, however, think that the symptoms are due to secondary infections, principally with the streptococcus. Baginsky says that sepsis rarely, if ever, develops where antitoxin is administered early, though he admits that the initial infection may occasionally produce such virulent toxins that it is impossible to neutralize them with the ordinary dosage, even if the antitoxin is given early. The best known and most feared of the cardiac complications are those which occur after the local disease has disappeared. Most observers maintain that before the heart affection endangers life a number of characteristic symptoms develop which will put a careful observer on his guard. If a pulse becomes unusually rapid or excessively slow during convalescence, the condition of the heart should be ascertained as nearly as possible. Another important symptom is a disturbance of the normal rhythm of the pulse, which becomes double or intermittent. The second pulmonic tone of the heart becomes accentuated, and a murmur may exist which is almost always systolic in time. Nephritis is a frequent complication and is not caused by antitoxin, but is an expression of the diphtheritic toxemia, though it is observed that since the use of antitoxin the severe cases of nephritis are becoming less frequent. Paralyses are seen, particularly in cases where antitoxin is administered late, or neglected cases where the physician is not called in until the third, fourth, or fifth day. As a rule, they will not occur if antitoxin is administered on the first day.

Empyema.—G. T. Howard¹⁰ is of opinion that a good many of the empyemata of young children can be cured by aspiration alone. He would hesitate about urging a serious operation, such as excision of a rib and opening of the pleural cavity, in all cases where there were no alarming symptoms. In some cases reported by the writer the principal characteristic was the fact that the pus was evacuated through the bronchi. All the four cases recovered. In none of them was there the pain

and distress characteristic of pyopneumothorax present, either at or after the time of the perforation.

Gruels as Diluents of Cow's Milk.—In the course of some remarks upon this subject, Henry Dwight Chapin¹³ states that experiments made by him show that dextrinized gruels are more efficient attenuants than plain gruels, the former producing a more spongy curd that can be readily acted on by the gastric juice. Plain gruels and milk with rennet form rather gelatinous curds. The reason dextrinized gruel has such an effect on the curd is that, as the starch has largely been converted into the soluble forms, the gruel is composed, in great extent, of the cell walls of the cereal from which it is made. This cellulose is very flocculent, and when dispersed through the curd tends to prevent contraction; and as there is little adhesive material present, the curd breaks apart rather easily.

Hydriatic Measures in Febrile Disorders.—Simon Baruch¹² writes that water is not an antipyretic, but rather an antifebrile agent. In endeavoring to give the patient relief, it had become the custom to treat the symptoms in fevers. Hence veratrum and aconite were plied to diminish the frequency and fulness of the pulse, quinine and coal-tar antipyretics to reduce the temperature, chloral and trional to allay restlessness and secure sleep, diaphoretics to remove aridity of the skin, morphia to relieve pain, and stimulants to arouse depressed vitality. The author is convinced that hydriatic measures may supplant most, if not all, of these remedies. The rationale of the beneficent result of hydriatic measures is simple. The application of water of a temperature below that of the body produces a primary contraction of the cutaneous vessels, which is followed by a tonic dilatation. In many infectious diseases the peripheral vessels are in an atonic condition. In the milder types and stages this condition of the vessels is not sufficient to impair cardiac action. In the more severe cases, however, the existence of this abnormal condition in the cutaneous vessels contributes to a more or less gradual exhaustion of the heart, the chief lethal danger which the physician is called upon to prevent and combat in febrile disorders. The application of water, more or less lower than the body temperature, to the skin, restores the lost tone of the cutaneous vessels, which are capable of holding two-thirds of the entire blood supply of the body. Resulting from their contraction to normal action, we have increased resistance to the blood current, the cardiac systole is enhanced, as is evidenced by increase of pulse tension, diminution of pulse rate, and removal of dicrotism. This is accomplished through the medium of the nervous system, so that we have two basic elements in the maintenance of life—stimulation of the nervous and vascular systems. In the early stages of all febrile diseases of children the full baths referred to are of value when the body temperature remains persistently high and the accompanying discomforts of fever are pronounced; and yet simple ablutions often suffice to secure favorable effects. It is a

serious but too frequent error to fear the shock from water much below the temperature of the body, but it must be borne in mind that the aim of cold applications is a stimulus to the nervous system which is to be evoked by reaction, and that the latter can only be obtained as a sequel to some shock. Hence the fallacy of such an apprehension becomes evident. The chief point to be observed is the exercise of judgment in adapting the shock to each individual case. In all febrile disorders of children the author is in the habit of ordering hourly or two-hourly ablutions, beginning with water at 90° , and reducing one degree each time until 60° are reached, as an initiatory measure. Their good effect may be readily sustained by a wet compress wrung out of water at 70° to 60° , covered with a thin flannel to keep the bed clothing dry, and snugly applied every hour to the anterior part of the body. In pneumonic fevers of children a gradually reduced full bath is used, placing the child's entire trunk into water at 96° , using continuous friction over the body, while another person adds ice water so as not to touch the body, until the bath water is reduced to 85° or 80° —duration five to eight minutes. Such a bath should be followed by drying and friction. In typhoid fever the water temperature is reduced several degrees *before* each bath until 75° are reached. Drying is not recommended. The bath lasts ten to fifteen minutes. In pneumonia the chest compress at 60° , repeated every hour or two, has been found to be an effective auxiliary. It is usually begun at 100° , which being several degrees below the body temperature, is not relaxing; then gradually reduce each one two to five degrees until 60° are reached. In those desperate cases of broncho pneumonia, whether idiopathic or complications of the exanthemata, in which positive stimulation is needed, when the skin is cyanotic, the respiration shallow, pulse rapid and almost imperceptible, extremities cold though internal temperature is high, the author orders a stimulant and administers an affusion with a basinful of water at 60° poured with some force over the shoulders of the child, while the latter is held semi-recumbent in a tub of water at 105° reaching to the navel. This is followed by drying and friction, and repeated every hour or two, increasing the number of basins gradually up to four. The entire aspect of the case often improves after the judicious application of such an affusion. The latter is also indicated in the early stages of those severe scarlatinas and measles in which similar conditions exist without pulmonary complications. Cold full baths are not borne well in scarlatina.

Hydrotherapy in Childhood.—J. Comby¹⁴ says that whenever there is hyperpyrexia, with or without delirium, restlessness, ataxia, and adynamia, whether in an eruptive fever, in typhoid, in diphtheria, or in any septicemia, cold water may be used. He has used it successfully in scarlatina, measles, variola, grippe, diphtheria, infectious diarrhea, and in erysipelas. Pneumonia and broncho-pneumonia may be treated by cold water, even in infancy; in the former it is almost always well

tolerated. In the latter it is contraindicated when the lesions are scattered and the bronchi filled, and the cold bath should be replaced by a cold pack. It is not well borne in tubercular meningitis, miliary tuberculosis, heart disease; but in all cases ice bladders may be placed on head, chest, or abdomen. Cold packs are useful and have rendered good service in chorea, in hysteria with convulsions or tremor, in cerebral irritation, and in all neuroses of childhood. The first cold bath should be given at a temperature of 28° to 30° C. (82° to 86° F.) for five to ten minutes, in order to avoid frightening the patient or the family. Subsequent baths should be at 25° C. and 20° C. (77° to 68° F.). The latter is well supported even in infants, but it must not last more than ten minutes nor less than five. It must be followed by friction in a warm covering, and a little stimulant or hot coffee, etc., be given. The bath may be repeated at intervals of three hours. Children often scream and fight at the first bath, but the relief given is so great that they rarely oppose, and often call for, the second.

Indigestion in Infants and Children.—James H. Taylor¹⁶ emphasizes the fact that the two causes which produce most annoyance in early infancy and terminate ultimately in serious secondary gastric and intestinal disorders are *over-feeding* and *improper feeding*. The first step in prophylaxis is to ascertain the weight of an infant and its gastric capacity. The second step is the selection of proper nourishment. The third step is the regulation of the hours for feeding. In addition to these measures, careful attention must be directed to the cleaning of the bottles, nipples, mouth, etc. In the modification of milk the oatmeal water and the barley water must contain a minimum proportion of starch, as the young infant is not able to digest this substance. When digestive derangements already exist, the first step indicated is washing out of the stomach and cleaning out the alimentary tract. Absolute rest should be insured by withholding all food, especially milk, until vomiting ceases. When vomiting ceases albumen water with brandy and salt may be given, but milk should not be resumed until the fourth day or until all symptoms have disappeared.

Infantile Hemiplegia.—James Priestley³ reports a case coming on suddenly in an infant 20 months old, recovery occurring eventually. The writer is inclined to think that whooping cough and the excitement caused by the removal from home of an excitable child are the main factors in the etiology, and that, as vision, leg, and arm were affected, a meningeal hemorrhage occurred, exercising pressure over the angular, supramarginal, ascending parietal, and ascending frontal convolutions of the right side. Continued rubbing of lips and cheeks with the right hand may have been an example of "reflex act," occasioned by some sense disturbance in the skin and face. Screaming and contortions, as to the cause of which the writer was uncertain, were not influenced to any marked degree by very liberal doses of chloralamide.

Meningitis due to the Typhoid Bacillus.—H. Wentworth¹⁶ reports a case in which the diagnosis was based upon the presence in the meninges of a purulent exudation which contained enormous numbers of the typhoid bacilli, and the failure to detect the presence of other organisms by means of careful bacteriological examinations.

Otitis Media in All Grave Diseases of Infancy.—E. H. Pomeroy¹⁷ reports some cases and gives a review of the literature of the subject. He believes that the pharyngeal post-nasal chamber is a distributing point for infection to the middle ear, brain, lungs, stomach, and intestines, and that the middle ear is an incubator and generator, promoting general toxic disturbance in very many cases of localized infectious diseases. Ponfick, whose attention had been attracted to this subject, gives the following table as a result of his research:

PONFICK'S TABLE OF ONE HUNDRED CONSECUTIVE AUTOPSIES OF INFANTS,
THE FIGURES REFERRING TO OTITIS MEDIA.

	Nor- mal.	Uni- lateral	Bi- lateral.	Nor- mal.	Uni- lateral.	Bi- lateral.
NON-INFECTIOUS PROCESSES.						
1. Congenital heart disease.	1		1			
2. Extensive burns.....			1			
3. Non-infectious dermatitis. .		1	2	1	1	4
INFECTIOUS PROCESSES.						
A. Acute.						
1. Infectious dermatitis..	1		3	1		3
2. Diphtheria.....	3	1	2			
3. Scarlatina.....			1	3	1	3
4. Pneumonia.....	1		10			
5. Meningitis (with or without pneumonia).....	1		8	1		18
6. Gastro enteritis, acute		2	5			
7. Gastro-enteritis, chronic (with or without pneumonia).....	1	5	21	2	7	26
8. Otitis media only.		2	6			
9. Otitis media with acute bron- chitis.			2		2	8
B. Chronic.						
10. Chronic tuberculosis only... ..		1	3			
Chronic tuberculosis with acute generalization (acute miliary tuberculosis).....	1	1	10	1	2	13
11. Congenital syphilis.....			3			3
	9	13	78	9	13	78

In most of these cases the actual condition, or rather the condition of the middle ear, was not suspected before death, and the cause of death is that given by the attending physician.

Pedal Formation from an Evolutionary Standpoint.—W. Ainslie Hollis¹⁸ believes that a study of congenital malformations tends to support the doctrine of evolution. He selects as an instance the human foot. The fact that the distortions of this member recur at rare intervals, yet over and over again, among all sorts and conditions of men, is a convincing proof, to the author's mind, that we are here dealing with cases of reversion to some ancestral types of foot from which the present shape was evolved. The author compares some of the most striking types of club-foot to the feet of lizards and arboreal animals as exemplars of this reversion. If we arrange the recognized distortions of the foot in the following order—talipes calcaneo-valgus, talipes valgus, talipes equino-valgus, talipes equinus, talipes equino-varus, and talipes varus—we perceive at once a certain sequence in these abnormalities whereby they apparently pass almost imperceptibly from one form to another. Furthermore we find in them anatomical resemblances to existing or extinct types of normal feet occurring elsewhere in the animal kingdom. And the rarest distortions are usually those which represent a reversion to the oldest types of foot.

Polyarthritis Deformans in Childhood.—M. Moncarvo¹⁹ says that statistics in regard to 48 cases of this affection among children between the ages of 3 months and 14 years prove that it is not so rare in childhood as might be supposed. He reports and describes a case in an infant of 5 months. The geographic distribution of the disease is not well known. The predisposing causes appear to be, living on the ground floor in dark, damp rooms, and defective alimentation. Girls are more often attacked than boys. The chief etiological factor, however, would appear to be a micro-organism. The primary lesions are confined to the periarticular tissues, to the ligaments and the synovial capsule. Osteophytic deposits appear at a later stage, when at all. Many articulations are simultaneously affected, as a rule, and become the seat of pain varying in intensity and readily propagated to neighboring muscles, which are affected by spasms or cramps and finally retract. Anemia with emaciation and atrophy of the muscles follows. Banatyne has noted a marked increase in the number of leucocytes, together with a reduction of hemoglobin to the extent of thirty or forty per cent, this being due, in his opinion, to the action of toxins elaborated by the bacilli. The affected parts become more or less deformed. The prognosis is good. Iodine and electricity constitute the best form of treatment.

Primary Sarcoma.—Herbert M. Hewlett¹⁰ reports a case of primary sarcoma of the liver in a child 14 weeks old. A full description of the case and an account of the autopsy are given with photographs.

Splenectomy for Rupture.—George Heaton³ reports a successful case in which a record of examination of the blood was kept. The conclusions are that: 1. A marked pathological leucocytosis, better marked than in any other hitherto recorded case. 2. A proportionate diminution in the number of lympho-

cytes, notwithstanding the slight hyperplasia of the lymphatic glands. 3. A proportionate and large actual increase in the large mononucleated forms, which seems to throw discredit on the theory that the spleen is specially concerned in the production of such cells. 4. An abnormal number of the so-called transition cells exhibiting changes in their nuclei and protoplasm, as in the transformation of large mononucleated cells into finely granular oxyphiles. 5. A remarkable want of evidence of interference with the ordinary red blood cells.

With regard to the unclassified varieties of leucocytes, described as varying from seven to one per cent, the following cells were noticed: (a) A few leucocytes filled with large, clear granules, almost like small vacuoles. These cells had usually a rather pale, multipartite nucleus. Similar bodies were also found in other leucocytes, together with fine and coarse oxyphile granules. (b) One typical and several atypical myelocytes. (c) Some cells three or four times the size of a red cell, resembling enormous lymphocytes, with a small amount of granular (basophile) protoplasm. (d) Transitional cells with some fine oxyphile granules.

The Examination of Sick Children.—Langford Symes²⁰ believes that as young children never know the seat, nature, or cause of disease, and the friends often mislead one through ignorance, and its discovery is therefore entirely dependent on the physician's physical examination, he should examine *every organ*, especially in hospital practice. Delay, roughness, and interruptions must be avoided. The examination must be made quickly. The child should be wrapped in a blanket or dressing gown only. As full a history as possible should be obtained as to symptoms, previous illnesses, conditions of birth, feeding, dentition, family history, hygienic conditions of home. As to examination, the following order is recommended:

1. *Facies*.—General appearance, pale, florid, or jaundiced; fat, or pinched and wasted, well developed or dwarfed. Attitude, if at ease, distorted, choreic, paralytic, or otherwise crippled. Sanity, intelligence, state of cerebration. Conscious or comatose. Edema, cyanosis, skin affections, or eruptions are at once obvious. Respiration is visible. Physiognomy alone often reveals disease (chorea, pleuro-pneumonia, meningitis, adenoids, Bright's, wasting of diarrhea, atrophy or marasmus, inherited syphilis). The state of the ocular muscles and pupils is easily observed, and may reveal paralysis from cerebral abscess or tumor, thrombosis of sinuses, tubercular meningitis, or diphtheritic paralysis.

2. *The Head*.—Pass hands over it, to observe if there is sweating as in rickets. Note size and shape, whether microcephalic, hydrocephalic, rickety or "natiform," with bosses or osteophytic nodes on the surface of bones. The anterior fontanelle may be obliterated too early, or be widely open with resilient, attenuated edges, or tense and bulging; flat, or deeply sunken and depressed. Craniotabes may be felt. Measurement of the head is necessary in estimating mental capacity.

3. The hands pass down from head and examine the entire *frame*, bones, and joints; the shoulders, arms, hands, fingers, chest, ribs, hips, legs, and feet. (Rickets, rheumatism with its subcutaneous nodules, torticollis, clubbed fingers, deformities, joint affections and bone diseases, sarcoma, erythema nodosum, edema, chilblains, and pseudo-hypertrophic paralysis are thus at once observed.)

4. The *reflexes* are commenced next: Plantar, ankle clonus, knee jerks, cremasteric, abdominal, epigastric, facial irritability (for tetany), and ocular reflexes. Neuritis, chorea, diphtheritic paralyses, Friedreich's disease, meningitis, spastic paraplegia, birth palsies, and hemiplegia can frequently be differentiated thereby.

5. The *eyes* should be scrutinized for ocular paralyses, vision, photophobia, nystagmus, etc.; the *ears* for otorrhea, etc.; and the *nose* for snuffles, ichorous discharges, depressions, adenoids, etc.

6. The *Glands*.—Parotid, cervical and submaxillary, thymus and thyroid, supraclavicular, axillary and inguinal, showing perhaps mumps, Hodgkin's disease, tubercle, sarcoma or new growth, syphilis, glandular fever, or, with an atrophied thyroid, myxedema or cretinism.

7. *Abdomen*.—Gentlest palpation will alone reveal its true condition. Observing the *intestines*, we look for abdominal tubercle, tubercular peritonitis with bands of lymph, tubercular ulceration of bowels, enlarged mesenteric glands, ascites, tumors, intussusception, constipation or dilatation of colon. We measure the *liver* by finger breadths below the costal arch, and feel its edge. The *spleen* may often be felt and measured. The *kidneys* should be sought for, as they may be felt in some morbid conditions.

8. The *heart* should be examined; enlarged areas of cardiac dulness in children occur in chorea, pericarditis, diphtheritic paralyses, rheumatism, some cases of congenital heart disease, and whooping cough.

9. *Lungs*.—Look for atelectasis or collapse, broncho-pneumonia and empyema, tubercular lobular pneumonia and apex pneumonia. Now, as the child is sitting up, we glance next at the *spine* and test its curves, prominences, depressions, suppleness, or rigidity. We must distinguish rickety curvature of the spine from Pott's disease. We must recollect paralysis of the muscles of the back from diphtheritic paralyses, tumor of the cord, or anterior poliomyelitis.

10. The *neck* reveals wasting. Rigidity may occur in tubercular or purulent or posterior basal meningitis, cerebellar tumor, enteric fever, diphtheria, apex pneumonia, tetany, retropharyngeal abscess, cervical caries, rheumatism, etc.

11. *Mouth*.—Lips, gums, teeth, tongue, cavity, palate, tonsils, and *throat*. We may find thrush, scurvy, stomatitis, and cancrum oris; delayed or irregular dentition from cretinism, rickets, or syphilis.

In the passage of the hands from the head twice up and

down the body, the fullest information can be quickly gathered from examination of the various organs *en route*, while the hands are never taken off the child.

12. Special investigation of the *nervous system* must be conducted if any suspicion remains or if any nervous trouble is revealed. We should examine the motor phenomena, reflex, sensory, trophic, electrical, bladder, and rectum phenomena, mental capacity, speech, power of sitting, standing, walking, etc.

We can examine the urine, rectum, and anus and alvine discharges for worms, diarrhea, dysentery, prolapse, or syphilis. Blood estimation, the ophthalmoscope, weight, height, measurements, and psycho-physical instruments can all be used.

The Pathogenic Action of Milk Microbes.—R. Jemma,⁹ from a number of researches, concludes that the pathogenic action of the ferments of casein are the following: 1. The casein ferments most frequently found in milk belong to the group of *bacillus subtilis*; this has no pathogenic action upon the animals used for the purposes of experimentation. 2. Among the casein ferments we may meet microbes belonging to the group *bacillus mesentericus vulgatus*. Some of these are at times endowed with pathogenic powers when a large number are ingested and act upon the intestinal mucosa; when introduced into the peritoneal cavity, the blood, and subcutaneously, they produce no effect. Their pathogenic action would appear to be due to trouble caused in the contents of the digestive tract and on the intestinal mucosa, rather than to the secretion of toxins. 3. The *bacillus butyricus* of Huëppe and allied varieties, when isolated from milk, appear to be without pathogenic action.

The Prophylaxis of Tuberculosis in Children.—Olimpio Cozzolino²¹ holds with Huebner that tuberculosis in infancy is not rare, that under the age of 2 years it is of great gravity, and that many cases of the disease in adults have their starting point in infancy. The paths of entrance to the germ are many. Children live so near the ground, and so often lie or fall upon floors, that the germs enter their respiratory tracts very much as they do in quadrupeds, lodging in the lobes and at the bifurcation of the trachea, rather than in the apices as is the case in adults. Scrofula predisposes to tuberculosis, and, according to Koch and his school, both are due to the same cause. The digestive tract is vulnerable to the bacillus, introduced in the milk from tuberculous mothers, or from tuberculous food partaken of by the mothers or nurses, or from tuberculous cows. Placental infection has been shown to be possible. As to heredity, Maffucci has demonstrated that the children of tuberculous parents are not more susceptible to the action of the bacillus than the offspring of healthy parents, but they are more liable to tuberculosis because of their constant association with these tuberculous persons. Under proper hygienic conditions hereditary

tubercular intoxication can be cured, and even embryonal tuberculosis may be cured in the new-born. The marriage of persons suspected of tuberculosis should be forbidden; midwives should be free from all taint of the disease; tuberculous mothers should not nurse their children, and should exercise restraint in handling or caressing their children—indeed, total separation from them, cruel as it may seem to be, is the truest kindness. Infants with a tuberculous heredity should not be vaccinated in the first year of life. It goes without saying that the most absolute cleanliness should be enforced in regard to everything that comes near the child. It should not play on the floor nor touch playthings that have been there; the floor must be kept scrupulously clean, and if the infant falls on it his hands and face must be washed at once. As it grows older it must be carefully guarded from all contagious diseases, as these are often the starting point of pulmonary tuberculosis. Open-air life, free ventilation at home, careful hygiene, cold baths led up to by degrees, sun baths, warm but not overheating clothes, and a nourishing diet are the best weapons against the enemy. Children are much more easily treated than adults, because they are subject to parental control. Parents, teachers, and nurses should all be carefully instructed in the prophylaxis of tuberculosis.

The Tonsils as Portals of Infection.—Emil Mayer²² is convinced that septic infection of a serious and often fatal nature occurs after tonsillar infection, and that it is our duty to take such steps as will tend to the prevention of such infections. Neither tonsillitis nor peritonsillitis is the innocent affection it has been supposed to be, and they should both be treated energetically. Careful examinations and treatment are absolutely essential between the attacks, and the heart and other organs should be examined from time to time after anginas. In the discussion of the paper, Dr. Isaac Adler stated that it had been conclusively demonstrated that there is a direct interchange between the surface of the tonsils and the lymph current, and it is also well known that the tonsillar crypts are favorite breeding places for many kinds of bacteria, particularly the staphylococci and the streptococci. He deplored the tendency of many in the medical profession to still adhere to the notion that there is a distinct relation between the inflammation of the tonsils and articular and muscular rheumatism, for there is every reason to believe that rheumatism, of whatever variety, is an infection dependent upon the introduction into the system of attenuated pyogenic bacteria, notably the staphylococci and the streptococci. This would explain the common clinical experience of an attack of severe rheumatism being ushered in by a tonsillitis. Rheumatic endocarditis and myocarditis may also occur as the result of a tonsillar infection.

The Value of Incubators.—Drs. Hutinel and Delestre²³ believe that incubators can be of great service, providing that these rules are followed: 1. The use of some method which

will allow of frequent disinfection and prevent sudden variations of temperature. 2. The exercise of great care in placing the incubator in perfectly healthy surroundings; when in contaminated surroundings, the infants are very likely to die. 3. The placing in the incubator of only such children as have hypothermia. 4. Their removal as soon as the rectal temperature reaches 37° C. (98.6° F). From that time on the incubator is not only unnecessary but is a source of danger. 5. No infected child should ever be placed in an incubator, and an infant who becomes sick while in it may sometimes be removed with advantage. An incubator is simply a method of defending infants against cold until their own temperature shall have reached normal—*i.e.*, for a period of time varying from two to fifteen days. After that, air and sunshine are best suited to their development.

Thrombosis of the Basilar Vein.—Léon d'Astros⁹ reports a case, from which he concludes: 1. That softening of the cerebral peduncle may occur in two ways. In addition to softening by arterial obliteration in the posterior cerebral system, there are softenings due to venous obliteration—thrombosis of the basilar vein. 2. Tubercular meningitis may cause bacillary phlebitis, or at least venous thrombosis. Thrombosis of the basilar vein and the lesions which follow are exhibited clinically, in the course of a tuberculous meningitis, by a crossed hemiplegia.

Thrombosis of the Sinuses in Children.—J. Hallé and G. Ulmann²⁴ report two cases. The first was that of a boy of 18 months, in whom severe coryza and rhino-bronchitis were followed by grave nervous phenomena, and who died only twenty-four hours after the appearance of otitis. The second was a case of pneumonia and double otitis which were apparently cured, but returned, and were followed by cerebral symptoms and death. In both these cases the autopsy showed thrombosis in the sinuses of the dura mater, and a histological examination of the clots revealed the presence of the streptococcus pyogenes, but of no other organism.

Tuberculous Joint Disease.—Leonard W. Ely²⁵ calls attention to some points for the early diagnosis of this disease. A history of a previous injury or infectious disease, or a family history of tuberculosis, will aid the physician. Pain and stiffness are two important symptoms. The pain is not exactly located; the patient does not press a finger down on a certain spot, but usually passes it over a region. It is worse on motion, and is apt to come in paroxysms at night. The "night-cries" are characteristic. The general condition of the patient should be noted, and then he is stripped so that the attitude and the presence or absence of deformity or of change in contour may be observed. Next, muscular spasm is to be looked for, and this will manifest itself, besides the visible spasm, by limitation of motion in the joint. Any attempt to force the range of motion in a diseased joint will cause pain. In order to elicit this pain, the practice of striking the child

on the top of the head or the soles of the feet, or of making him jump from a chair, is quite unnecessary. Sensitiveness to pressure need not be expected; hence the inutility of prodding the part with the fingers. It is no symptom of early tuberculous disease; nor is increase of temperature, except sometimes in joints which are near the surface.

Typhoid Fever in the Young.—An article upon this subject by A. Jacobi²⁶ is so exhaustive that it is only possible to bring out some of the points in an abstract. In regard to infection and contagion, it has been found that the bacillus is active even after it has been dry for months, and that it retains its vitality for one to two months in the soil and clothing. Into the water and into the soil it is introduced with typhoid discharges which carry contagion. This explains isolated cases and those attributable to the influence of privies and sewers, and the transmission through the atmosphere. Flies have been charged with carrying the contagion. Infected water that is used for drinking or for washing the bottles and cases in which milk is kept is responsible for hundreds of epidemics. Contagion from patient to patient in a hospital or in a tenement, by bedding, by the hands of the attendant, by the use of the same unwashed thermometer for the typhoid and non-typhoid, are either possibilities or facts. The fetus and newly-born may obtain their typhoids through the blood or milk of the mother. Small infants are more or less exempt, because their typhoids are not frequently attended with characteristic stools, which makes a hospital case less dangerous to its neighbors, and they are not roaming about the floors where older children pick up contagion. Severe cases, when exhibiting bad cerebral symptoms, are liable to have low temperatures on account of the thorough sepsis prevailing. Temperature and danger need not correspond. The very feeble are not, as a rule, subject to high temperatures any more than the very old, and quite often the worst cases of sepsis are those which exhibit low temperatures. Irregularities of temperature often depend on complications such as otitis, which is quite frequent. In connection with otitis media, we should not forget that it does not necessarily terminate in perforation of the drum membrane, for the pharyngeal end of the Eustachian tube is so large a funnel at early age as to permit the discharge of pus from the middle ear. Other complications are scarlatina, malaria, suppurating arthritis, and diphtheria, these being detrimental in the same way. Constipation and clandestine feeding may have the same effect on the temperature. The absence of intestinal lesions is rare in the adult, but is less common in the young, especially the very young. As a rule it may be stated that the intestinal tract suffers more in advanced age, the blood more in the early. Hemorrhages in the very young are exceptional, and mostly mild in children of more than 4 years. The organs of circulation are not affected to the same extent as in adults. The average heart of the young is stronger and less diseased. The irregular respiration of nervous or frightened infants and

children, their tympanitic colon and high diaphragm, possible exudation in left pleura or lung, and the struggle against examination, whether painful or not, render the diagnosis of the condition of the spleen difficult. Percussion succeeds less than palpation, which may reveal the lower edge of the spleen. It is rarely felt before the end of the first week. Retention of urine is rare in children, but occurs when there is coma or peritonitis; in that case urine for examination must be obtained by catheterization. The observation made by Lafleur and others, that the urine voided after cold bathing exhibits a high degree of toxicity, would rather speak in favor of that treatment; for the more toxic the urine and dangerous to the laboratory animal, the less toxin there is left in the patient. Whatever diuretic effect there is in cold bathing, as in other remedies, is welcome, the condition of the patient permitting, as speedy elimination is what should be aimed at. The desquamation of typhoid may be quite copious and resemble that of measles or even of scarlatina. On the other hand, some of the eruption of the two latter may resemble the roseola of typhoid fever. Not every case of seeming cerebral or meningeal symptoms should be attributed to cerebral affection only; still, contractures or convulsive movements may occur when there is an effusion from the pia mater. Such complications of genuine meningitis with typhoid fever certainly occur, and not only after the eighth or tenth year, when gradually the typhoid fever in the young resembles more and more that of advanced age. Aphasia is occasionally seen. Polyneuritis is rare, as is also hemiplegia. Paraplegia is more common, and still more so is local paralysis. Psychical disturbances occur as a result of inanition, meningitis, or parenchymatous tissue changes caused by the toxin; mania and melancholia are the two forms mostly met with and do not always terminate favorably. The motor disturbances, not paralytic, particularly chorea, get well. Much is naturally made of the presence of bacilli in the discharges of doubtful cases, and quite often the diagnosis has had to depend upon it. The author would utterly refuse, however, to accept the diagnosis of typhoid fever in some cases, unless there were one or more adjuvant symptoms; for the same reason he would refuse the diagnosis of diphtheria when there is nothing but the presence of the Klebs-Löffler bacillus. Treatment consists of liquid food; cleansing of lips, tongue, and nose; change of posture to prevent hypostasis of the lungs and cord; purgative dose of calomel in the beginning, but not after the second half of the first week; daily warm-water enemata if there is constipation; intestinal antiseptics if the discharges are offensive; strong stimulants in case of collapse; chloral hydrate for insomnia or excitement, or croton chloral if the heart is feeble; ice water or ice bags to the head if there is much heat in the head; cold affusions, while the body is submerged in water of 90° or 95°, for sopor or coma. Notwithstanding the feeling against antipyretics, it is certain that the comfort of the patient is en-

hanced and grave nervous symptoms alleviated when the hot, dry skin becomes cooler and moist in proportion to the reduced temperature. Antipyrin is the safest. Cardiac stimulants improve the general and cutaneous circulation, and thereby the radiation of heat from the skin. Cold water and warm water are the most reliable and at the same time safest antipyretics. Stress should be laid on the latter title, because many apostles of hydrotherapy, influenced perhaps by shaky phagocytosis and toxin theories, belittle it in comparison with the nerve-stimulating powers of water. Many patients are unable to stand the shock from cold water, especially if the treatment is begun late. Warm baths of 90° or 95° reduce temperature, and the general condition is improved by their use when they are accompanied by friction. Warm bathing should be *the* principal treatment of typhoid fevers, not to the exclusion, however, of other measures.

Vulvo-vaginal Catarrh.—Francis Huber¹⁵ recognizes two classes of this disorder, the simple catarrhal or non infectious and the infectious. All cases of vulvo-vaginal catarrh should be carefully examined bacteriologically for the characteristic cocci; if found, the appropriate remedies should be employed early and effective prophylactic measures adopted. It must not be forgotten that the disease is rather intractable, and treatment must be continued as long as the microscope shows the presence of the gonococcus in the discharge. In a number of cases, particularly those attended by hypogastric and pelvic pains, it will be found that the discharge will cease in a short time when treated, to recur in a week or so after the irrigations are discontinued. This recrudescence, no doubt, is due to renewed infection from above. Under such circumstances tonic treatment must be resorted to, the child's general condition improved, and the injections repeated at intervals of several days or a week.

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THE AMERICAN
JOURNAL OF OBSTETRICS
AND
DISEASES OF WOMEN AND CHILDREN.

VOL. XLI.

APRIL, 1900.

No. 4.

ORIGINAL COMMUNICATIONS.

DERMOID CYSTOMA OF THE PELVIC CONNECTIVE TISSUE:
WITH THE REPORT OF A CASE.¹

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(With four illustrations.)

UNTIL the description and classification of the pelvic connective-tissue dermoid cystoma by Sanger in 1890, all retroperitoneal pelvic dermoid cystomata were believed to have primarily developed from ovarian tissue. From the study of a case where such a tumor occupied a position beneath the peritoneum, between the uterus, vagina, and rectum above and the iliac fossa below, and in which the ovaries were apparently normal, Sanger was convinced that the tumor could not be an ovarian dermoid, but must have primarily developed from structures deep in the pelvic cavity beneath the peritoneum. In a search through the literature he was able to find described ten similar cases

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, February 15, 1900.

which would support a non-ovarian theory of origin, and from his study of these cases he was led to the conclusion that all were dermoid cystomata primarily originating and developing in the retroperitoneal pelvic connective tissue. These studies of Sanger later instigated others (by Page, Schulze, Hofe, De Quervain, and Skutsch), with practically the same conclusions, De Quervain adding very positive proof against the ovarian origin, and likewise very convincing proof of the development of such dermoids in pelvic connective tissue, by the report of a case occurring in a male subject. This theory of origin and development in pelvic connective tissue seems to have been accepted by the Germans, Rosthorn, in the chapter "Die Krankheiten des Beckenbindegewebes" of Veit's "Handbuch der Gynakologie," making the statement that the primary development of dermoid cystoma in the pelvic connective tissue has very definitely been determined.

In this paper I shall describe a case of this rare form of dermoid cystoma, and make a report of the anatomical, pathological, and clinical characteristics of the cases thus far described. For the proper understanding as to what is here referred to as the pelvic connective tissue in which these cystomata have been found to develop, some explanation is necessary. First, it is to be understood that we refer only to the superior area of the connective tissue of the true or small pelvis, the subperitoneal pelvic cavity (Sanger), which comprises the perirectal and retrorectal connective tissue; that connective tissue found between the superior surface of the pelvic diaphragm (the levator ani and obturator internus muscles) and the peritoneum of Douglas' cul-de-sac; the connective tissue between the layers of the broad ligaments, not including the mesosalpinx; and the connective tissue surrounding the uterus, vagina, and bladder.

Further, we clearly separate all dermoid cystomata of the inferior pelvic connective-tissue area (the subcutaneous pelvic cavity or ischio-rectal fossa) and of other positions, structures, or organs of the pelvic cavity, especially those that secondarily involve the connective-tissue area first described. Also, we shall not include or discuss cases where there is a question of doubt as to the position of development in the pelvic connective tissue.

The case coming under my observation may be described as follows: Mrs. L. T., American, colored, housewife, 38 years of age, was admitted to the Gyneccean Hospital on November 14, 1899. Her family history was very good and had no bear-

ing on her illness. As a girl she was strong and healthy. The menstrual function was established at 16 years of age. It was never regular, appearing at first every three months, and then, after marriage, every two weeks. The flow was always quite profuse. She is the mother of one child (now 19 years of age) and has had five miscarriages. When 25 years of age (1886) she began to complain of pain and tenderness in the lower abdomen and constant and rather profuse hemorrhage from the uterus. In the winter of 1887 she consulted her family physician because of the symptoms just described. He determined the presence of a bilateral pelvic inflammatory disease and advised operation. Celiotomy was performed by two prominent Philadelphia surgeons, and both tubes and ovaries were removed. A letter from the family physician, who then attended her, states that, in addition to the inflammatory disease, there was a small cyst of the right ovary, but the character of this cyst was not determined. The cyst was removed with the ovary, and I think we can conclude that it was produced by the inflammatory disease. The surgical convalescence following operation was perfectly normal, but the same character of hemorrhage from the uterus continued for a month, and twice afterward, each at an interval of three months, slight hemorrhages from the uterus occurred. The operation was followed by all of the usual symptoms of the induced climacterium, and since the spring of 1887, more than twelve years, there has been no discharge of any kind from the uterus or vagina. A small ventral hernia appeared a month after operation, but it did not increase in size nor did it cause symptoms. This operation was followed by much improvement in her general health, and she had constantly been quite healthy until six weeks before coming under observation. At this time she began to complain of backache, and pain and tenderness in the right ovarian region. She was not aware of the presence of an abdominal tumor, and believed the pain to result from the ventral hernia. On admission to the hospital a small ventral hernia, having two openings, each about one inch in diameter, at the site of the old celiotomy incision, was demonstrable. A loop of intestine protruded through each opening only when the patient assumed the erect position. The abdomen was flaccid and resonant everywhere except in the right ovarian region; here a circumscribed area of resistance was demonstrable, extending above Poupart's ligament to a point opposite midway between the pubes and umbilicus. Its surface

seemed to be irregular and gave the impression that it was composed of a mass of intestinal adhesions. There was dulness on percussion over this area of resistance. The vaginal outlet and vagina were much contracted, and the mucous membrane showed the smooth, atrophic changes characteristic of the complete climacterium. Bulging into the right vaginal vault and displacing a small, atrophic uterus upward and to the left was a rather tender cystic tumor, which was part of the mass protruding above Poupart's ligament. The mass was immovable and its surface still seemed somewhat irregular. Considering the fact that both tubes and ovaries had been removed and every indication of resulting atrophic changes was present, I was at a loss to explain the cause or even guess at the character of the tumor.

Celiotomy was performed on November 18, 1899. The hernial sacs and abdominal cavity were opened in the usual manner. The uterus was seen to be small and atrophic, and displaced by a cystoma, the size of a large grape fruit, growing quite deeply in the pelvic cavity and completely separating the peritoneal layers of the right broad ligament. There were no intestinal adhesions, no old ligatures or stumps, or indication of remaining ovarian tissue, but the surfaces of both ligaments and the uterus were smooth and normal. The superior surface of the broad ligament was incised from the pelvic wall to the uterus, the blood-vessel supply being controlled by ligatures placed at the uterine cornu and pelvic wall. The cystic tumor, which, from its bluish-gray color, was easily determined to be a dermoid cystoma, was enucleated from its bed without much difficulty. The capsule was somewhat adherent to the inner surfaces of the broad ligament, lateral uterine wall, and floor of the pelvis. The bleeding from the cavity from which the cystoma had been enucleated was not profuse, except at the uterus, where the utero-ovarian vessels were injured. Several attempts to control this uterine bleeding were made by ligature, but it was finally found necessary to also remove the uterus. Attention was then directed to the cure of the hernia, and the abdomen closed. The patient made a perfectly normal convalescence, and left the hospital four weeks after operation, free from all previous symptoms.

Macroscopical Description of Specimens.—The specimens were composed of a dermoid cyst the size of a grape fruit, and the body of a small, atrophied uterus.

The cystoma was of a grayish-blue color and about globular

in shape, measuring 30 and 35 centimetres in circumference and 10 and 12 centimetres in diameter. The external surface was covered with small adhesions, otherwise it was smooth and regular. On incision the cystoma was found to be composed of a large and small loculus, separated by a very thin septum (1 millimetre). Both loculi were filled with the usual sebaceous material, of a brownish-yellow color in the large and yellow in the small loculus. The material from both loculi solidified on becoming cold. The internal surface of the large loculus was a mottled white and bluish-black color, and smooth and regular except over a circular area 4 and 5 centimetres in diameter. Here the surface was roughened and resembled the character of skin, and the cyst wall was much thickened, measuring 2 centimetres in the centre and generally 0.5 centi-

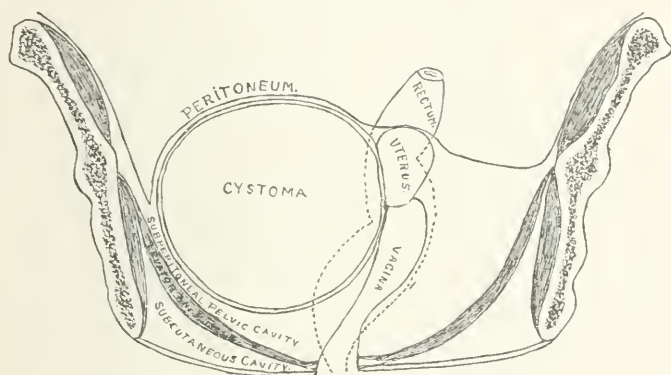


FIG. 1.—Diagram of Beyer's case.

metre at the periphery. In the centre of this mass there was a small prominence which very much resembled the nipple of a mammary gland. The entire mass was, therefore, about the shape of an undeveloped mammary gland. About half of the mass was of the consistence of fat tissue, and the other half the consistence of mixed bony and cartilaginous tissue. On making an incision through the softer tissue it was macroscopically composed, throughout the entire thickness, of pure fat. An incision through the denser tissue entered a minute loculus, which contained a few drops of semi-fluid mucoid material. In the tissue between the fat and this small loculus, beneath the surface and embedded in the substance of the mass, irregularly placed, were seven solid, bony bodies. They were triangular in shape, opaque, measured 2 by 5 millimetres, and one end of each was attached to the cartilaginous tissue.

They in every way resembled undeveloped teeth. To the opposite side of the fat tissue, separated by a very thin fibrous wall, was a small, oblong loculus containing a mass of shed and attached black hair, averaging 7 inches in length. The hair was covered with a small amount of sebaceous material. The internal surface of the smaller loculus was smooth and of a grayish-white color. The walls of both loculi were very thin, 3 millimetres in thickness, and composed of dense fibrous tissue.

The uterine body was about one-fourth the size of the normal multiparous uterus, measured 3.5 centimetres in length and 2.2 centimetres in thickness. The endometrial surface was smooth and appeared atrophic.

Microscopical Examination of Specimens.—Portions of tissue were taken from the cyst wall and described mass of tissue and from the wall of the uterus for microscopical examination. All sections showed the internal surface of the cyst wall covered with a thin layer of stratified squamous epithelium. There were no papillæ. Immediately beneath the epithelium there was a wall of dense connective tissue containing a large number of sebaceous glands, and in a few places collections of small round cells. Also, in the sections taken from the wall of the loculus containing hair, there were a number of hair follicles. The mass of tissue resembling an undeveloped mammary gland was composed of fat and connective tissue. No glandular tissue could be found. The endometrium was atrophied, composed of a thin layer of stroma cells containing a few tubular glands.

The only question of doubt which could arise as regards the primary origin and development of this dermoid cystoma in the pelvic connective tissue is that at the operation twelve years before all ovarian tissue might not have been removed, and from such remaining ovarian tissue the cystoma developed. There is, however, strong evidence in the clinical history following the first operation, and from the anatomical changes found at this last operation, to prove that no such ovarian tissue could have been present. The occurrence of three menstrual periods immediately after complete bilateral salpingo-oöphorectomy for pelvic inflammatory disease is not very uncommon, even when all ovarian tissue has been removed, and there is therefore no reason to believe that such was not the case in this instance. For twelve years the patient had not menstruated, which would prove that at least no functioning ovarian tissue existed. At the last operation not the slightest indication of

remaining ovarian tissue, pedicle, or ligature could be discovered. The uterine body, vaginal vault, vagina, and vulva showed the usual advanced atrophic changes found in the post-climacteric period of life. The uterus, macroscopically and microscopically, was quite completely atrophied. The cystoma developed quite deeply between the layers of the broad ligament. Had the cystoma developed from ovarian tissue in the old pedicle or from ovarian tissue attached to the surface of the broad ligament, it would have no doubt grown in the direction of least resistance, into the peritoneal cavity, and not between the layers of the broad ligament.

From these facts there is every reason to support the belief that the position of development in this case was in the connective tissue of the broad ligament, and it must be granted to be an instance of the class of dermoid cystoma which primarily forms in the pelvic connective tissue, as described by Sanger, De Quervain, and others.

For the further study of these tumors I have followed the plan of Sanger and De Quervain, making a careful search through the literature for cases which in my judgment may be considered to be the primary pelvic connective-tissue dermoid. As a result of this investigation I offer the following short resume of twenty-two cases.

1. Birkett (1859). Etat. 25 years. Tumor observed for two years. Pain in tumor. Dermoid cystoma, size of a walnut, to the right of anal fold, chiefly between rectum and coccyx. Thick fibrous capsule; sebaceous dermoid contents. Incision and enucleation. Recovery.

2. Mannel (1864). Dermoid cystoma size of a pigeon's egg, with dermoid sebaceous contents. In connective tissue between peritoneum and levator ani muscle, to left of median line. (Postmortem.)

3. Mannel (1864). Cystoma the size of a hen's egg, with dermoid sebaceous contents. Position the same. (Postmortem.)

4. Deahna (1875). Etat. 18 years. Severe pain in abdomen, vomiting, painful micturition and defecation, tympanites. Retrorectal cystoma, reaching from anus to pelvic brim and toward left side. Rectum and vagina complicated. Contained epithelium and yellow sebaceous material. Puncture through rectum. Incision of cyst between rectum and sacrum. Suppuration involving rectum and vagina. Continued ten months.

5. Walzberg (1875). *Ætat.* 26 years. Three cystomata, size of a plum to fist, between coccyx and anus and toward left side, extending deep in pelvis. Contained dermoid sebaceous material, including plate of bone. Wall covered with squamous and cylindrical epithelium. Partial extirpation. Recovery with fistula.

6. Weinlechner (1877). Two dermoid cystomata developing in tissue in front of coccyx. Partial extirpation and partial destruction with nitric acid.

7. Solowjew (1883). *Ætat.* 29 years. Irregular menses, pain in limbs, and nervousness. Cystoma behind rectum and filling left true pelvis; contained grayish-yellow fluid, with cholesterin crystals and fat. Puncture per vaginam, then incision to left of anus, followed by partial enucleation of cystoma. Suppuration. Recovery after two months.

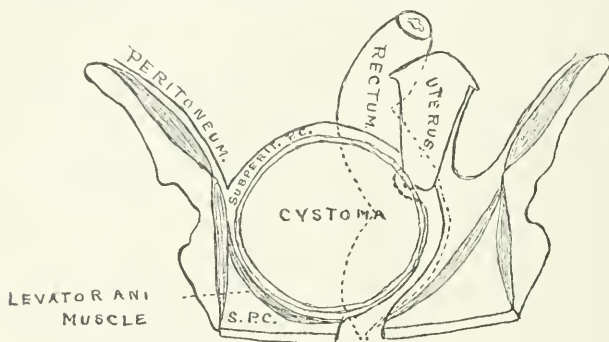


FIG. 2.—Diagram of Säger's case.

8. Emmet (1884). Recurring pelvic peritonitis, dysmenorrhea. Dermoid cystoma beneath peritoneum of Douglas' cul-de-sac. Celiotomy, enucleation, left tube removed; ovary, because of adhesions, not found.

9. Trzebiecki (1884). *Ætat.* 35 years. Cystoma observed for a year and a half. Pressure symptoms. Tumor, size of a child's head, in the left gluteal region, extending into and filling left half of true pelvis. Dermoid sebaceous contents, including hair, epithelium, cholesterin crystals. Wall: squamous epithelium. Incision and drainage. Six weeks later incision from perineum and enucleation. Suppuration. Recovery after ten months.

10. Biernacki (1887). *Ætat.* 28 years. Cystoma observed at labor and as obstruction to labor. Dermoid cystoma between sacrum and rectum, extending into vagina. Dermoid

sebaceous contents, including hair. Puncture through rectum during labor, suppuration, fistula, many incisions, finally incision through rectum, followed by recovery after four months.

11. Sanger (1890). Etat. 42 years. Cystoma obstructed the last three of nine labors. Pressure symptoms. Dermoid cystoma size of a child's head in right half of pelvis, displacing vagina and rectum toward the left, and uterus upward and to left. Dermoid sebaceous contents, with flat epithelium, fatty detritus, and cholesterin crystals. Puncture through rectum; then, nine months later, perineotomy, enucleation, leaving a part of cyst wall. Gauze pack. Recovery after two months.

12. Goodell (1890). Etat. 34 years. Cystoma observed seventeen years, increasing in size for two years. Exhausting menorrhagia. Dermoid cystoma weighing fifteen pounds,

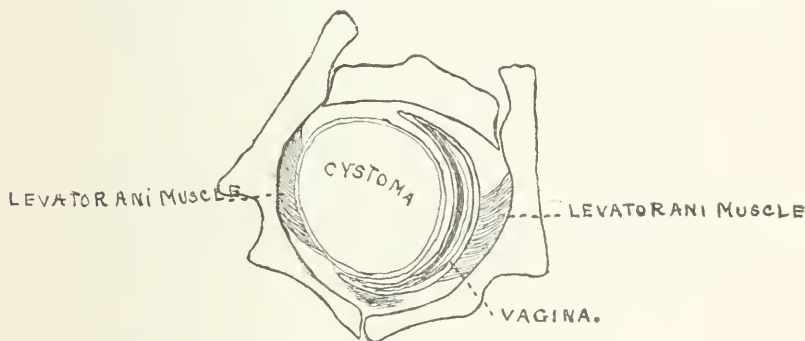


FIG. 3.—Diagram of Sanger's case.

developing from left broad ligament and having a peritoneal pedicle. Both tubes and ovaries normal. Celiotomy and enucleation. Recovery.

13. Page (1891). Swelling observed twenty years, slowly increasing in size and for two months causing symptoms. Dermoid cystoma weighing three pounds, between rectum and sacrum, displacing uterus, vagina, and rectum forward. Dermoid sebaceous contents, including hair. Puncture through rectum, suppurating cystoma, immediately followed by enucleation through incision between rectum and vagina. Drainage. Recovery.

14. Abel (1893). Demonstrated specimen removed by celiotomy. Dermoid cystoma of right broad ligament. Dermoid sebaceous contents, including hair, bone, and eight teeth. Right tube and ovary present. Recovery.

15. Schulze (1894). *Ætat.* 33 years. Observed during labor. Difficult defecation and pain while in sitting position. Two dermoid cystomata between rectum and posterior pelvic wall, extending from anal region to sacro-iliac joint. Ovaries normal. Dermoid contents. Puncture from anal region. Two months later enucleation through incision extending from coccyx to anus. Drainage. Recovery.

16. Höfe (1896). *Ætat.* 37 years. Tumor observed six years. Pain in tumor. Dermoid cystoma size of child's head

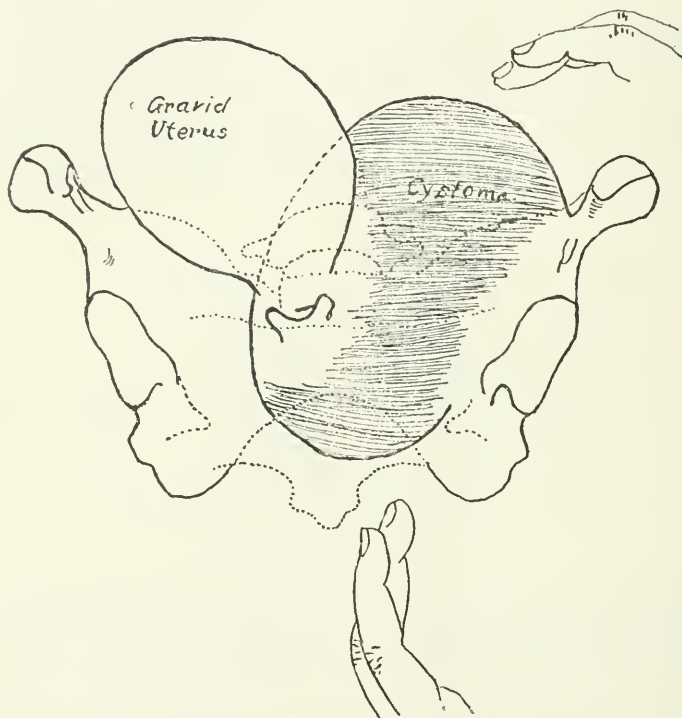


FIG. 4.—Diagram of Skutch's case (20).

in left gluteal region, reaching to pelvic brim and separating layers of broad ligament. Both ovaries palpable. Rectum displaced to the right. Dermoid contents, cholesterin, epithelium, fatty detritus. Wall covered with squamous epithelium. Enucleation by perineotomy. Drainage. Suppuration. Recovery after seven weeks.

17. Colonna (1896). *Ætat.* 28 years. Pressure symptoms. Dermoid cystoma lying four centimetres above anal opening, displacing rectum to right; upper margin could not be

reached. Dermoid contents. Enucleation through parasacral incision. Recovery after twenty-six days.

18. Rendu (1896). *Ætat.* 42 years. Dermoid cystoma of left broad ligament, extending above umbilicus. Dermoid contents, including hair. Separated layers of broad ligament. Celiotomy, enucleation, packing cavity with gauze. Recovery.

19. De Quervain (1898). *Ætat.* 58 years. Male. Symptoms for eighteen years. Painful micturition and defecation. Finally retention of urine. Dermoid cystoma filling entire small pelvis. Rectum displaced to right. Dermoid contents, detritus, epithelial cells, and cholesterin. Wall covered with squamous epithelium. Incision and drainage. Three weeks later removal of upper half through hypogastric incision, then three weeks later removal of lower half by parasacral incision. Recovery.

20. Skutsch (1899). *Ætat.* 28 years. Four and a half months pregnant. Observed three-quarters of a year. Pain in sacral and right inguinal region, dysuria, and difficult defecation. Dermoid cystoma on left side behind rectum, reaching from pelvic inlet to sacrum, coccyx, and levator ani muscle. Rectum displaced upward; pregnant uterus upward and to left. Brownish-yellow dermoid contents, epithelium, fatty detritus, cholesterin, and peptone. Wall covered with squamous epithelium. Perineotomy, puncture, partial enucleation and resection, and packing with gauze. Recovery after two months. Normal labor. Fistula.

21. Skutsch (1899). *Ætat.* 22 years. Pain in lower abdomen and sacrum, tenderness below umbilicus. Dermoid cystoma in left half of pelvic cavity behind rectum, extending from pelvic brim to sacrum and levator ani muscle. Rectum displaced forward and to right, uterus forward and upward. Dermoid contents (yellow), pseudomucin. Microscopically dermoid. Perineotomy, puncture, complete enucleation, and packing with gauze. Recovery after two months.

22. Beyea (1900). *Ætat.* 38 years. Indefinite pain in lower abdomen. Ventral hernia. Dermoid cystoma, size of grape fruit, deep in pelvis between layers of right broad ligament. Bilateral salpingo-oöphorectomy twelve years before. Uterus displaced upward and to left; also slightly displaced vagina. Dermoid contents, including hair, undeveloped teeth, sebaceous glands, and squamous epithelium. Celiotomy, enucleation, and supravaginal hysterectomy. Recovery.

From the description of these cases it is apparent that one is

not able to determine the actual primary position of development of the cystoma, for the growth of the tumor in each instance was well advanced and the normal anatomical relations of the pelvic organs were much disturbed. The only knowledge to be gained in this direction must be concluded from the amount and direction of displacement of organs and structures, particularly the rectum. We find that the cystoma in 12 of the cases grew behind and displaced the rectum, the rectum being displaced upward most frequently, frequently toward the right, and only in one instance toward the left (Sänger). It would seem that in these 12 cases the tumor primarily developed in the retrorectal connective tissue, and in the cases of Walzberg, Trzebicki, Deahna, Solowjew, Schulze, Colonna, De Quervain, and Skutsch in the left retrorectal connective tissue. In the cases of Biernacki and Page the dermoid occupied a position in the median line, but was also retrorectal. In 3 cases (Mannel 2, Emmet 1) the cystoma was beneath the peritoneum in Douglas' cul-de-sac; in the cases of Mannel, between the peritoneum and the levator ani muscle. Höfe thought that in his case the cystoma primarily developed deep in the pelvic connective tissue, and with the increase of size it had separated the layers of the left broad ligament. Rendu describes the cystoma as developing between the layers of the left broad ligament; Goodell, that the cystoma was covered with peritoneum, which formed a pedicle, the tube and ovary of this side being normal. In our own case the cystoma must have developed primarily deep between the layers of the right broad ligament; also in the case of Abel the cystoma was in the right broad ligament.

Classing these tumors, then, from the direction of displacement of other organs, and assuming that they develop in the connective tissue beneath such organs, we would divide them into three groups:

1. Dermoid cystoma of the retrorectal pelvic connective tissue, most frequently occupying a position in the left pelvic cavity, less frequently the median line, and rarely in the right pelvic cavity (13).

2. Dermoid cystoma of the connective tissue of the broad ligament, left (3) or right (2).

3. Dermoid cystoma of the retroperitoneal connective tissue between the peritoneum of Douglas' cul-de-sac and the levator ani muscle (4).

In the development of the cyst the uterus, vagina, and blad-

der were variously displaced; the uterus usually forward, either in the median line or to the side; the vagina upward with the rectum, as particularly shown in the case of Page. The position of the bladder was not infrequently disturbed, even to the production of retention of urine. In the greater number of cases (all those which did not primarily develop in the broad ligaments, except that of Höfe) the uterus was displaced upward without separating the peritoneal layers of the broad ligaments. The development of the cystoma in the broad ligaments has been thought to be less frequent, but adding the cases of Rendu, Goodell, Abel, and our own case, it is to be placed as the second site of frequency.

The size of the cystomata varied. The smallest dermoid developing in connective tissue is described by Marchand, who found postmortem in the case of a young child a nodule the size of a large pinhead in the posterior layer of the broad ligament below the left ovary. This nodule microscopically showed the elements of the epidermis, and Marchand believed it to be a small dermoid of the broad ligament. The nodule was an undeveloped dermoid, and the case is, therefore, not placed in the table. Of the cases we describe, the smaller were the size of a pigeon's egg and plum. As examples of the larger are the cases of Goodell and Rendu—fifteen pounds in one, and in the other the tumor reached above the umbilicus. In most cases the tumor was smaller than the size of a grape fruit.

The cystoma in all was evidently easily enucleated and without much bleeding, as noted by De Quervain; there was no increase of connective tissue about the capsule, as is described by Ziegler in dermoids of another class. In the case we describe the hemorrhage resulted from necessary injury to the utero-ovarian vessels in accomplishing the enucleation on the uterine side. There was some hemorrhage in Case 20 because of the hyperemia of pregnancy. We would call attention to the fact that the fibrous capsule, at least in our case, was unusually thin.

The pathological anatomy of the wall of the cystoma and its contents is not of uncommon interest. The walls were composed of a layer of squamous epithelium and a layer of fibrous tissue, the first having more or less the arrangement of the skin. Walzberg found squamous and cylindrical epithelial cells. The connective-tissue wall contained no papillæ in the case of Höfe, but in those of Trzebiecki and De Quervain the papillæ were quite distinct. The contents was a brown

or yellow fluid, containing detritus, cholesterin crystals, flat epithelial cells, and sometimes masses of epidermis. Hair was found in 5 cases, bone in 1, and teeth in 2. The form of the cystoma was round or oval in the smaller and irregular in the larger, corresponding with the shape of the cavity occupied.

As regards the histological etiology, we are able to offer no information other than that they develop in the pelvic connective tissue, and resemble, for this reason, the dermoids developing in connective tissue of the inferior pelvic connective tissue area (ischio-rectal fossa) and the connective tissue of the eye.

Previously it was believed (Walzberg and Biernacki) that such retroperitoneal pelvic dermoid cystomata had their primary origin in the ovary, but since the publication of Sängers studies and those of Schulze, Page, Höfe, with the report of a typical case in a male subject by De Quervain, and now our own case, we have very positive proof of the rare occurrence of the pelvic connective-tissue dermoid here described. We can assert that it is in no way associated with the ovary.

The ovary was found normal or independently diseased in several instances (Mannel, Emmet, Goodell, and Skutsch); and where the form of treatment did not make it possible to determine the actual condition of the ovary, there was, from the anatomical relations of the cystoma, every reason to believe the ovary was not diseased. In the case of De Quervain and our own case an ovarian origin was impossible. There are, no doubt, ovarian dermoids which become separated from their attachment to the ovary and adherent in Douglas' cul-de-sac, or they secondarily develop between the layers of the broad ligament. Such cases have been observed since the time of Rokitsansky, and many operators have described them. The secondary dermoid cystoma of Douglas' cul-de-sac is found in front of the rectum and, as a rule, in the peritoneal cavity; if peritoneal, always between the layers of the broad ligament.

Considering the possibility of an ovarian origin, these cystomata, from their disturbance of the pelvic organs and peritoneum, are to be compared with the better studied papillary cyst-adenoma of the ovary and the parovarian cyst, developing from the parenchyma of the ovary and from the parovarium. The papillary cyst-adenoma is not rarely a retroperitoneal tumor, but we find that it first separates the peritoneal layers of the mesosalpinx, then the broad ligament proper, and only when of large size displaces the pelvic organs by growing in the retroperitoneal pelvic cavity. On the other hand, the dermoid developing in pelvic connective tissue always grows pri-

marily deep in the pelvis, and only rarely between the layers of the broad ligament. It never separates the layers of the mesosalpinx. In most cases the broad ligaments have remained normal (16), even though the growth was of large size. The papillary cyst-adenoma partially or completely destroys the ovary.

Whether the pelvic connective-tissue dermoid can have its origin in the remains of embryonal structures found in this position can only be surmised.

The age of the patients varied between 18 and 58 years. Considering, however, that in many instances the tumor was known to have existed for years, no accurate variation of age is determinable. They are evidently most often found during the period of sexual activity.

The fact that in all but one case the patient was a female may possibly be explained by the greater folding of tissues of the pelvis in the female, and thus the greater opportunity for infolding of the epiderm.

The subjective symptoms produced by the presence and growth of the tumor, when present, are not characteristic. They were caused either by pressure on nerves, on organs, disturbing their function, hyperemia or inflammation of the cystoma. The onset of symptoms was, as a rule, insidious and appeared only when the tumor was quite well developed, the larger tumors being associated with the most pronounced symptoms. The pressure symptoms were: difficult defecation and dysuria (5), pain in limbs (1), pain while in the sitting position (1). There was exhausting menorrhagia in 1, irregular menstruation in 1, and dysmenorrhea in 1. There was pain in the tumor in 4, due probably to inflammation of the cystoma in 2. The tumor was discovered as an obstruction to labor in 3, during labor in 1, and during pregnancy in another. The presence of the tumor was thought to be the cause of miscarriage in 3. It was discovered accidentally in 3 cases and post mortem in 2. The discovery of the tumor, presumably by the patient, occurred in 8 cases, and in these 8 cases the tumor had been known to have existed for three-fourths, one and a half, two, four, five, seventeen, eighteen, and twenty years. Spontaneous attacks of pain and feeling of weight in the pelvis were not infrequent symptoms. By bimanual vaginal examination a tumor was always discovered low in the pelvis, immovable, and displacing the pelvic organs upward or to the side. From its position it was often determined to be a retroperitoneal pelvic tumor.

The diagnosis of a dermoid cystoma was not made in any case except by puncture. The prognosis from this study of the cases reported may be said to be good; all cases thus far described have finally gotten well.

The treatment practised in the 22 cases, as far as we can determine, was as follows: The cystoma was punctured in 10 cases—through the rectum in 5 (2 during labor), the vagina 1, the hypogastrium 1, the anal region 1, and over the most prominent position of the tumor in the perineum in 2. In 3 of the 5 punctured through the rectum acute infection and suppuration resulted. In the other cases there was no reaction, also in the one punctured in the anal region.

Puncture in all other cases was soon followed by partial or complete enucleation of the cystoma. In the case of De Quervain puncture was necessary to relieve the retention of urine. It is to be noted that puncture through the rectum was frequently followed by infection, while that in other positions was harmless. Puncture may therefore be safely practised to relieve severe symptoms or when the cystoma complicates labor.

Surgical treatment was practised in 16 cases. The tumor was removed by perineal or parasacral incision in 7 cases, the removal being complete in all but 2; in one case a small portion of the cyst wall was left remaining (Sänger), in the other a considerable portion (Skutsch). The cystoma was completely enucleated and removed by an abdominal incision in 5 cases (Emmet, Goodell, Rendu, Abel, and Beye); by abdominal and perineal incision in 1, two sittings being necessary. Partial extirpation with drainage was the operation in 3 cases (Weinlechner, Solowjew, Walzberg), incision and drainage from perineum in 2 cases and from rectum in 1. Fistula, more or less permanent, occurred in 3 cases.

For the consideration of the operative methods best adapted to the removal and cure of such cases, as concluded from this study, we would, with De Quervain, separate the cases into three groups:

1. Cases in which the cystoma grows deeply in the true pelvis and approaches the levator ani muscle and perineum, as the case of Sänger.

2. Cases in which the cystoma grows in the upper portion of the true pelvis and is partially an abdominal growth.

3. Cases in which the cystoma occupies a position in the lower portion of the true pelvis, but does not approach the perineum.

In the cases of the first group it is always advisable to operate by a perineal incision, always completely enucleating the cystoma and packing the cavity with gauze. In such cases celiotomy and enucleation is impossible, impractical, and much more dangerous. Puncture, except through the rectum, under aseptic precautions, is permissible when the tumor complicates labor or to relieve severe symptoms, but should soon be followed by complete enucleation.

The cystomata in the cases of the second group are best treated by celiotomy and enucleation, observing the usual precautions for dermoid cystoma. The site of enucleation may be covered with peritoneum and the abdomen closed without drainage. In other cases it may be necessary to pack the cavity of enucleation with gauze or introduce other forms of drainage.

In cases which combine the first and second groups, extend into the lower half of the pelvis as well as toward the abdomen, and are retrorectal, the choice of method of operative procedure seems best left to the judgment of the individual operator. The danger of rupture of the cystoma during operation by the abdominal incision would make the perineal method somewhat safer. Page was able to successfully and satisfactorily enucleate such a cystoma from the perineum, even though it extended to the umbilicus, was inflamed and strongly adherent.

The cases of the third group are best removed by perineal incision, as in the case of Sanger.

The method of perineal operation which would seem to give the greatest manipulative power and yet not allow injury to important structures is that devised by Sanger. The patient is placed in the dorso-sacral position. A skin incision 8 centimetres long is made from the posterior third of the labium majus backward to a point 2 centimetres from the anus. Such an incision would describe a line midway between the anus and tuberosity of the ischium. After sagittal section and separation of the levator ani muscle, the hand may be introduced and the cystoma enucleated. There is no danger of injury to blood vessels, nerves, the ureter, vagina, or rectum.

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237 SOUTH THIRTEENTH STREET.

HYSTERECTOMY FOR ACUTE SEPTIC METRITIS AND PERITONITIS.¹

BY

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(With illustration.)

THE importance of this topic is my excuse for reiterating the views which I hold, based on no inconsiderable experience with puerperal infection in hospital and consulting practice. Whilst opinion is fairly well settled in respect to the treatment of that form of puerperal infection denominated sapremia, the common form of infection, we are still at sea in regard to that rare form of infection which for descriptive purposes I would call the *lymphatic*. The reason for uncertainty of opinion is simply that most of us frankly admit the difficulty of reaching a positive diagnosis of the latter form at an early enough stage for surgery to be of avail. This is the situation in a nutshell. We all know how to operate in the presence of indication; it is no longer a wonderful thing for any one to be able to herald the fact that he has opened the abdominal cavity and

¹ Read before the Harvard Medical Society, March, 1900.

extirpated the organs of reproduction one or more times; it remains, however, to-day as ever, a reprehensible thing, certainly a thing to be ashamed of, to be obliged to admit that operation, short of one of a major type, might have sufficed for the woman and left her with procreative organs of value. Lymphatic infection, however, travels very fast from the point of entry into the system at large, and the dilemma we are astride of is that of withholding the hand until operation can be of little avail on account of deep systemic infection, or else that of operating in error. This much all must frankly concede. Now, it is just here, in these obscure cases, that I enter a plea for exploratory abdominal section. Sappremia having been ruled out and the symptomatic picture being of that type which lymphatic sepsis assumes, in the full knowledge that the uterus and tubes and ovaries and peritoneum may be at fault (severally or collectively), certify to the nature of the lesion (the source of the infection) by bringing the organs of sight to the aid of those of touch, and thus give the woman the chance to live yielded by early surgery and by this alone. I have been guided to this opinion by witnessing case after case die notwithstanding operation, because of the fact that I have been summoned long after systemic lymphatic infection had become deep and generalized; and, on the other hand, on two occasions, by applying this precept of exploratory abdominal section, I have been able to save lives otherwise inevitably doomed.

Before referring to these cases and analyzing them, allow me to rehearse briefly the diagnostic landmarks by means of which we may ordinarily say that we are dealing with sappremia, where major operation must be rarely demanded, or with lymphatic infection, where early operation avails and where expectancy ordinarily carries fatal result. I would premise that to-day, fortunately, we rarely meet with that virulent type of infection called the lymphatic, but that, as a rule, the observer deals with sappremic infection, a type which becomes the more benign the earlier the treatment. Still, as practical operators and consultants, it is our duty ever to be on the watch for the thunder-clap from the cloudless sky.

Sappremia is due to the invasion of the genital tract by saprophytes, and, broadly speaking, the word means *necrosis*. In the vast proportion of cases the infection is the result of the decomposition of retained particles of decidua or of placenta within the uterus. The affection is local from the start, and it

tends to remain localized except in instances where a second form of infection is superadded, this form being the result of access of the streptococcus to the necrotic area. The symptoms are of gradual development, the phenomena become of high grade, and the customary salient diagnostic symptom is fetor of the lochial secretion. Under proper treatment, which is evacuation of the uterus and the cleansing of its cavity, the symptoms disappear and ordinarily the woman is left with healthy reproductive organs. Except in neglected cases, the tendency of this form of infection is not to spread beyond the site of infection, even though the symptomatic picture be of a higher grade than that of the type of infection which more particularly concerns us.

Lymphatic infection, on the other hand, spreads throughout the system rapidly; the symptoms are of low and of insidious grade, and, if unrecognized, before the observer is aware, the infection has travelled beyond the point of entry, and tubes and ovaries and peritoneum become diseased and irreparably so. The causal factor of the infection is the streptococcus, and its entry is at some abrasion of the genital tract, whence, by means of the lymph stream, the system at large becomes infected. When recognized in time the removal of the primary site of infection spares the system at large and the woman has chance of recovery. To-day, as already noted, we rarely witness this form of infection, and it is probably for this reason that we are still in the dark as to its early differential diagnosis. For it is only at an early stage that operative measures can be of much avail.

It is to be remembered that usually we deal with mixed infection in the puerperal state, and that the symptomatology alters, as also the prognosis, according as the saprophytic or the streptococcic infection be in the ascendant. Differentiation of the prevailing type of infection may be ordinarily reached, however, by paying attention to the following factors: An empty uterus and low-grade phenomena—that is to say, low temperature, and pulse rapid and out of proportion to the thermic rise—should suggest streptococcus infection as in the ascendant; whilst the presence of fetid discharge and the finding of remnants of necrosed decidua or secundines in the uterus, together with high pulse and temperature, suggest the prevalence of the sapremic type of infection. A *sine qua non*, then, in differential diagnosis is the examination of the interior of the uterus by the fingers, in order to exclude the chief source of

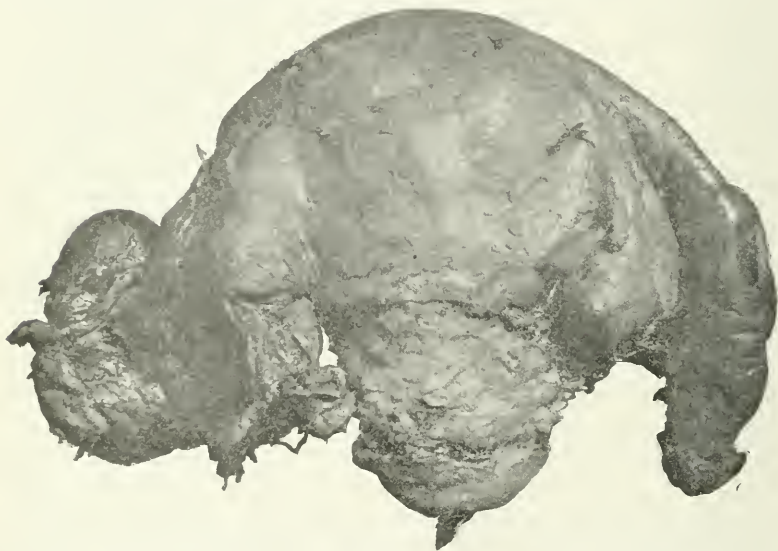
sapremic infection. In any case of puerperal infection, as a precedent step to irrigation or to curettage, the requisite is this examination, under anesthesia as a rule, since thus alone may the fingers carefully investigate the cavity of the uterus. It may be here stated as my opinion that in at least ninety-and-nine per cent this digital examination is feasible. Were this the rule, surgery would not be disgraced by the presentation of uteri removed because of the presence of necrosing débris within the cavity unrecognized, under the pretence that it was impossible to examine the uterine cavity.

There remains one per cent of instances where, notwithstanding all our care in exploration, neither sapremia nor streptococcus infection can be predicated and yet where the condition of the woman gives us much concern. The pulse is rapid, the temperature is low, the lochia are not fetid, there is no special tympanites, and yet the clinical picture suggests something of grave import as developing. Examination of the blood and of the lochial discharges may reveal the presence of the streptococcus and thus certify to the diagnosis, and such examination is possible, or should be, in all hospitals and in all large medical centres. It must be granted, however, that as yet this examination is rarely feasible in sufficient time to enable the operator to resort to the surgical measure which may alone offer hope of saving life; for let it be remembered that in the type of infection under consideration time is an element of great moment, the lymphatic stream carrying the streptococcus to the liver, brain, spleen, kidneys, etc., when operation of feasible nature does not offer. It is here, in these exceedingly rare cases, that exploratory abdominal section enables us to verify the diagnosis and to resort to such surgical measures as occasionally have resulted in saving even a forlorn hope.

Although I have seen every variety and phase of puerperal sepsis, and although I have noted death ensue notwithstanding surgery of the most radical nature, on two occasions alone have I seen instances early enough for exploratory section and the consecutive surgical measures to prove of avail. These instances I record, the first in brief, since it has already been reported in another place (vide *Obstetrics*, vol. i., No. 1).

CASE I.—Mrs. C., æt. 33, married seven years; three children, the last eighteen days previously. Since this delivery, has had fever, chills, abdominal pain, purulent vaginal discharge. Her temperature ranged from 100° to 103°, the pulse

from 120 to 130. On examination I found a large, boggy uterus above the pelvic brim, a sensation of bogginess in both broad ligaments, the cervical canal open and a purulent discharge issuing from it. The abdomen was slightly tympanitic, the tongue heavily coated, the facies pinched and anxious, the eyes sunken, the sensorium apathetic. Under chloroform anesthesia the uterus was explored by the finger and found empty. The decidual lining was softened in places, and therefore I was tempted to curette—something which to-day I would not approve of. During curettage the uterus was perforated and abdominal section was forced upon me, and most unwillingly, because careful exploration led me to doubt the implica-



Uterus and appendages from case of septic metritis and peritonitis following induced abortion.

tion of the uterine adnexa or of the peritoneum. It should be stated, however, that the subject was exceedingly fat and that therefore, even under anesthesia, the bimanual was far from satisfactory. On abdominal section the uterus, tubes, and ovaries were found to be greatly injected and swollen, the tubes enlarged and filled with pus, the uterine parenchyma softened and pitting on pressure. Total hysterectomy was quickly performed, the broad ligaments being ligated with No. 2 catgut (chromic) as close to the pelvic side as possible. The cavity was flushed with a number of gallons of salt solution, plain sterile gauze was packed in and carried into the vagina,

and the abdominal incision was closed after my customary fashion (in layers). Within twenty-four hours the temperature and the pulse were normal. On the fifth day there was a rise of temperature due to a mural abscess, but beyond this complication convalescence was uneventful.

The report of the pathologist was as follows: The uterus is swollen and soft and its interior contains gauze. The Fallopian tubes are tortuous, enlarged, and dark red in color. At the fundus of the uterus is a slight perforation, evidently made by the curette. The remnants of the broad ligaments are softened. The cavity of the uterus is clean. There is pus in the tubes and in the walls of the uterus. Culture shows mixed infection of various pathogenic and non-pathogenic organisms. Streptococci were not determined, although they may have been present, the cultures having all died when the examination was undertaken. The diagnosis reached by the pathologist was acute metritis and salpingitis.

To sum up this instance: Within twenty-four hours after radical operation symptoms of acute sepsis, existing for over two weeks, disappeared. The inference is justifiable that operation of a major type saved this woman's life, for in my experience it is but a step from the conditions found to peritonitis of fatal type. The abdominal section in this case was unpremeditated, and certainly would not have been resorted to had it not been for the—in this case—fortunate perforation of the uterus by the curette.

This instance made a deep impression on me and suggested the advisability, in cases of puerperal sepsis where the focus of infection was not in the uterus, as proved by its emptiness, of resorting to exploratory section for diagnostic purposes.

CASE II.—In April, 1889, I was notified that a young unmarried woman had been referred to my service at the Columbus Hospital, by Dr. Simon Marx, with the diagnosis of acute general peritonitis following induced abortion at the sixth week. The abortion had been performed three days previously. When I saw her the temperature was 100°, the pulse 130, the respiration 28, the abdomen boggy and flattened out as is seen in case of ovarian cystomata. The uterus was enlarged and movable, and its surroundings were boggy. Under anesthesia the uterus was examined and pronounced empty. There was no lesion of the cervix or the vagina, and combined examination did not satisfy me that I was dealing with any specific lesion of the tube or ovary (such as pyosalpinx or ovarian

abscess). I confess that I was puzzled, for the symptomatology was that of a woman profoundly septic, and yet I had been unable to locate the course of infection. Sappremia being out of the question, remembering the findings in the case I have just related, I determined an exploratory abdominal section. On entering the cavity I found it generally filled with sero-pus, the coils of intestines uniformly injected, covered with greenish false membrane, and adherent to the uterus and in Douglas' fossa. On lifting out the intestines the prettiest pathological picture I have ever seen outside the dead-house was revealed. Uterus, tubes and ovaries, and bladder were covered with greenish pseudo-membrane; the veins in the broad ligament were greatly enlarged and filled with thrombi; the broad ligaments were swollen; the tubes and ovaries were swollen and contained pus; the uterus was softened and could be indented by the fingers. I determined on total hysterectomy, and this was accomplished with difficulty, since the broad ligaments were so rotten that my catgut ligatures repeatedly tore out. In separating the bladder with my fingers the organ was entered, so softened was the substance. I closed this rent with small catgut, everted the intestines in order to wash off the false membrane as much as possible. I flushed out the peritoneal cavity with gallons of saline solution, and I established multiple drainage by means of strips of sterile gauze. The convalescence of this woman was excessively stormy. Both the antistreptococcus serum and the Credé silver ointment were freely used, without, to my knowledge, any especially marked effect. The bowels and the kidneys acted freely throughout, and to this and stimulant and dietetic measures I attribute her recovery after the primary focus of infection had been removed by surgery. Bacteriological examination of the specimen revealed mixed infection, streptococci predominating.

To sum up: In this instance sappremia was certified as absent; there did not exist physical signs sufficient to warrant positive diagnosis of implication of tubes or ovaries or peritoneum calling for radical surgery; exploratory abdominal section revealed morbid conditions which, unless arrested by the removal of the infectious foci, would inevitably have been followed by general systemic infection and, in all likelihood, death.

General Conclusions.—Whilst the vast majority of instances of puerperal infection recover under minor operative

measures, about one per cent die notwithstanding operative treatment, except where such treatment is resorted to *early*.

A *sine qua non*, therefore, is *early* diagnosis.

On the occurrence of septic phenomena in the puerpera she should be subjected to a most thorough physical examination, preferably under anesthesia, for the purpose of differentiating saprophytic and streptococcic infection.

Sapremia (saprophytic infection) yields to local operative measures, except where expectancy has ruled or streptococcic infection has been superadded. In such event major operation may be called for; as a rule, however, at a remote period from the date of initial infection.

When the clinical phenomena are of low grade, in particular where the pulse is rapid in proportion to the temperature—a *warning of general systemic infection*—sapremia having been ruled out, even though definitive focus of infection in the pelvis cannot be located (other sources of systemic disturbance, such as pneumonia, urinary toxemia, etc., having been excluded), exploratory abdominal section is indicated for absolute diagnosis. Thereby early removal of the infectious nidus (be it tube or ovary or uterus, or all) becomes feasible before the system at large has been surcharged with infectious elements, when it is folly to expect aid from surgery of either minor or major type.

These conclusions will hold even though it is recognized that ordinarily we deal, not with pure infection, but with a mixed type, the clinical phenomena varying according to the predominance of one or the other recognized infectious element. It is for this reason that we cannot expect tangible results, as yet, from the serum-inoculation treatment of puerperal sepsis.

The streptococcic type of infection is so exceedingly rare that only exceptionally is hysterectomy demanded in the puerperal state.

36 EAST FIFTY-EIGHTH STREET.

ABDOMINAL HYSTERO-SALPINGO-OÖPHORECTOMY BY A NEW
METHOD FOR MULTIPLE FIBROIDS OF THE UTERUS,
FIBROID OF THE OVARY, CONGENITAL
MALFORMATION OF THE VAGINA, ETC.

BY

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M. W., age 33, married, general health fairly good, moderately deaf, never menstruated in her life. Has been of a very nervous temperament since 17 years old, when she began to complain of pelvic pains, which usually lasted several days in each month and were sometimes very severe. For several years she also had pains at other times, more severe in the left ovarian region and in the back; sometimes these pains were very severe. In 1897 her bowels began to be constipated and she would not have a movement for days, even with mild laxatives. She had to take freely and often of cathartics and enemata to combat the constipation. Often she had severe pains in the bowels and abdomen during the day and moderate pains at night. She also had pain when the bowels moved, straining at stool, and sometimes passage of blood by the anus. Sexual intercourse was satisfactory, except that it was painful and the vagina did not seem long enough.

Examination showed that the vagina was about two inches long. No cervix could be felt or seen; the vault of the vagina terminated in a nearly perfectly smooth depression. With a catheter in the bladder and a finger in the rectum, it was noted that there was no intervening cervical tissue at the vault of the vagina. The lower abdomen was painful and tender, more on the left than the right side; the fundus uteri was somewhat enlarged, irregular in shape, and drawn over to the right side of the pelvis. On rectal examination we noted a fissure of the anus, internal hemorrhoids, and a hard mass connected with the posterior surface of the uterus and pressing against the wall of the rectum.

In October, 1899, Dr. D. A. Beattie, of Santa Clara, made an incision, under cocaine anesthesia, into the vaginal vault and tried to locate the cervix; but satisfactory work could not be

done under local anesthesia, so the wound was packed with gauze and allowed to heal by granulation.

I saw her with Dr. Beattie in the latter part of October, and on November 4, 1899, assisted by Drs. Beattie and George Gross, I made operation. Fifteen minutes before anesthesia was begun she was given a hypodermatic of morphia, a quarter of a grain. Ether was administered by the drop method. An incision two and a half inches long was made slightly to one side of the median line, immediately above the pubes, dividing the skin, fat, and fascia; blunt division of the right rectus was made, and finally the peritoneum was opened at the upper angle of the incision and then torn down with the fingers to the lower angle.

She was now placed in the Trendelenburg position and the pelvis examined intraperitoneally. The fundus uteri was readily located over in the right side of the pelvis and was drawn to the surface with double tenaculum. The uterus was slightly larger than normal and was covered with multiple small fibroids; the largest tumor, the size of a walnut, was located low down on the posterior surface of the body of the uterus and pressed against the rectum. At the lower part of the body of the uterus, and continuous with it, but high up away from the vault of the vagina, was a small fibrous mass, which no doubt was the cervix. The ovaries and tubes were ill-developed; the tubes were about one-half the normal circumference, but otherwise normal; the left ovary was about twice the normal size and contained multiple serous cysts, which when opened showed that there were no normal tissues; the right one was about one-half the normal size, pale, cirrhotic, and on its surface was a small pedunculated fibroid.

Abdominal hystero-salpingo-oöphorectomy by enucleation without ligature, clamp, or cautery, etc., was performed. In removing the left tube and ovary and the uterus, broad-ligament forceps were used as temporary hemostatics, levers and tractors while the enucleation was proceeded with—what I call using the forceps as an addition to the enucleation method of ovariectomy, hysterectomy, etc. A pair of long forceps was applied and tightly locked on that portion of the broad ligament corresponding to the left tube and ovary, which were enucleated, using blunt dissection, aided at times by cuts with a scalpel, keeping very close to the ovary and tube, which were extirpated without cutting a vessel. The cut edges were inspected, but no vessel was found, so they were at once

sutured with continuous stitches of fine chromicized catgut. The right ovary and tube were removed by enucleation without bleeding, and the cut edges at once sutured with fine, continuous catgut stitches. Two long forceps were then applied on the broad ligaments, one on each side near the uterus, which was also excised by enucleation.

By using blunt dissection, aided at times by cuts with a tenotomy knife, keeping very close to the uterus, the latter was removed without severing a vessel in the broad ligaments. First the left broad ligament was separated, then the right, the peritoneum extending from the uterus to the bladder, and the rectum was divided with a tenotomy knife, keeping very close to the uterus, which was excised down to the cervix. The cut edges of the broad ligament, the peritoneum in the pelvic floor, etc., were inspected, but no vessel was found; so the edges were at once sutured with continuous stitches of chromicized kangaroo tendon. When the stitches were all inserted not a spot of raw surface was exposed; the pelvis was sponged out, the long forceps removed, and the abdomen closed, without drainage, in separate layers with continuous absorbable sutures, using first chromicized catgut for the peritoneum, chromicized tendon in three layers for the superficial and deep fasciæ and the divided rectus muscle, and very fine silk for the skin.

Dressing.—Aristol was dusted along the line of the skin incision, the wound was covered with borated gauze, which was held in place by long strips of adhesive plaster, and finally cotton and binder were applied.

She was placed in the lithotomy position, buttocks slightly elevated, the legs kept in position with a Clover's crutch; the anus, buttocks, and rectum, etc., were disinfected and dried with gauze sponges, and the sphincters thoroughly stretched. The base of the fissure was lightly incised; all ragged tissues were curetted and trimmed away. The hemorrhoids, internal and three in number, were next removed, one after the other. The first was grasped with double tenaculum and drawn down well into view, exposing its base; estimation was made of the amount of tissues that should be left after excision was done, so that the cut edges could afterward be accurately sutured without tension. A broad-ligament forceps was applied to the base of the pile, the direction of the blades corresponding to the long axis of the bowel; the pile was drawn out well and the forceps forced down on the rectum, so as to include as

much of the base as possible; the forceps was closed and locked tightly, and the pile was cut off, leaving only enough tissues on the surface of the forceps so that the open mouths of vessels were located and ligated separately with fine catgut and the cut edges accurately stitched with continuous suture of medium-sized catgut. The two other piles were similarly removed, and finally the forceps removed in the order in which it was applied. The wounds were dusted with aristol.

The small depression in the vault of the vagina was explored, freely opened laterally and upward by blunt dissection and by tearing with the fingers. The cervix, which was small, was found high up, about three inches above the false vaginal vault. The walls of the vagina, extending from the cervix to the false vault, appeared normal to the feel and sight. The wound and vagina were snugly packed with gauze from the cervix downward, so as to make a single continuous canal from the cervix to the vulva. Examination of the uterus after the operation showed that there was a small uterine cavity which communicated at each cornu with the tubes, and terminated below in the rudimentary cervix uteri.

The patient recovered; the abdominal wound healed by primary union; the finesilk stitches were removed on the eleventh day, and collodion was freely applied. She was allowed up and around three weeks after the operation. She states that she feels well, except that she is still somewhat nervous and has at times some pain in the left side of the abdomen; this area of pain appears limited to a portion of the sigmoid flexure of the rectum. She looks well, appetite and digestion good, bowels regular without laxatives, has no pain during defecation, no tenderness in the abdomen, pelvis, or rectum, and the vagina appears of normal calibre and length.

326 KEARNY STREET.

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NEPHRO-URETERECTOMY.

BY

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(With four illustrations.)

MRS. L. N.; age, 27; nativity, English; occupation, housewife. Though born of a tuberculous mother, her health was good up to three years ago. At that time she had typhoid fever. Recovery was protracted and health impaired for two years. For the last year (1898) it has been good, excepting the short period of a few weeks preceding her confinement, which occurred four weeks ago. She then had chills, which continued up to her admission to the hospital. They were followed by pain in the back, left hypochondriac and lumbar regions. Does not live in a malarial locality.

Blood Examination.—Red corpuscles very much decreased (not counted); many large red cells; hemoglobin decreased (50 per cent¹); marked leucocytosis; no malarial plasmodia.

Urinalysis.—Specific gravity 1026. Quantity normal, reaction acid, trace of albumin, excess of amorphous urates. No casts.

Physical Examination.—An oval-shaped mass about six inches long occupies the left hypochondriac region. It is smooth and elastic, but does not fluctuate. Its edges are sharp, and the right border bears a characteristic splenic notch. There is some dulness behind this mass, extending in the direction of the lumbar region. The surface is pale; patient anemic; temperature slightly elevated; heart, lungs, etc., negative; puerperium normal. Having excluded puerperal infection and malaria, the location and shape of the mass,

¹ My own estimate.

together with the notch on the border, and the leucocytosis with slight elevation of temperature, pointed to the presumption of an enlarged, suppurating spleen. (Grady Hospital notes.)

On my return to the city a week later I found an immense extraperitoneal abscess, extending from the diaphragm to the brim of the pelvis, filling the iliac fossa and protruding inward to the median line at the level of the umbilicus (Fig. 1). It was fluctuating and pointing on the border of the quadratus lumborum muscle, where, on the 10th of December, 1898, it was freely opened by a two-inch vertical incision. About half a gallon of thin, fetid pus escaped. The cavity extended be-

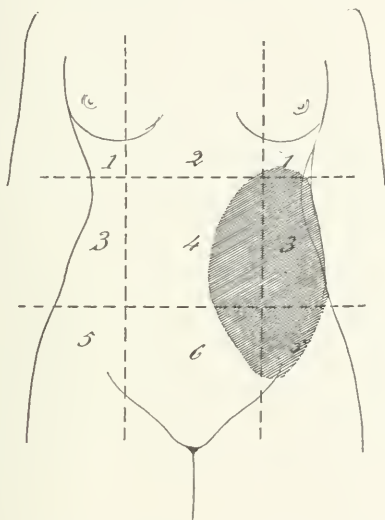


FIG. 1.—Retroperitoneal abscess at time of first incision.

yond the reach of the fingers, above the margin of the ribs. Below, the anterior crural nerve had been dissected free for a distance of about three inches, and traversed a portion of the cavity like a suspended cord. The peritoneum was stripped from the iliac fossa to the brim of the pelvis, and the abscess cavity, when distended, was apparently the size of an adult head. Under irrigation and drainage it gradually closed, leaving a sinus extending upward in the direction of the spleen and also downward toward the iliac fossa. This abscess was due to extension of suppurative tuberculosis of the kidney into the fatty tissue. Pus accumulated above and behind the kidney and spleen, forcing the latter, which was previously prolapsed,

forward and inward, and later, or at the period of greatest distension, upward and out of reach. She remained in the hospital seventy-six days, and left with the sinus discharging a small quantity of sero-pus.

She returned December 12, 1899, very much improved; color good, and free from fever, except when the fistula would close and cause an accumulation of pus; pain, chills, and fever would follow, and persist until drainage was re-established. No urine escaped from the fistula. Inspection and palpation disclosed a large, nodular, immovable mass in the left lumbar region, extending from a short distance above the lower margin of the ribs to a point a little below the crest of the ilium and inward to the nipple line. No definite conclusions were drawn from urinary, vesical, or ureteral examinations, except that the left ureter was thickened and strictured about the junction of its lower and middle thirds.

Inoculation of a guinea-pig was attempted, with the view of verifying the diagnosis of tubercular kidney; but the sinus had been thoroughly cleansed with a bichloride solution, which, inhibiting the growth of bacilli, caused a failure. When the house surgeon made the inoculation he was not aware that an assistant had just used the solution referred to.

On December 20, 1899, with the assistance of Drs. Moncrief, Hardin, Hansell, and Jones, of the house staff, I opened the sinus in the line of the old cicatrix (vertical lumbar incision) and traced it deep into the iliac fossa; then, cutting through a thick mass of scar tissue, followed a branch into the spaces between the transverse processes of the lumbar vertebræ, where three blind sacs were located close to the body of the bones (one sac in each interspace). The upper arm of the (main) sinus ran directly to the spleen and terminated in a cul-de sac at the lower extremity of that organ. Another fistulous canal, branching off from this one, turned upward in the direction of the left lobe of the liver, then forward, then inward, then downward, and terminated in two tuberculous pockets in the upper extremity of the kidney, which contained thick pus and cheesy matter.

After thorough scraping and cleansing of the sinuses the kidney was enucleated. This required an extension of the incision inward and downward an inch and a half from the crest of the ilium, terminating on a line drawn from the anterior superior spinous process of that bone to the umbilicus. This enabled penetration into the loose or normal fatty tissue

about the kidney and behind the old scar tissue of the original abscess pocket, and very much facilitated dissection. In stripping the peritoneum from the cicatricial mass, an opening was made in it large enough to admit the end of the finger. It was immediately closed by small catgut. After extensive and tedious dissection the kidney was turned out and its vessels ligated separately.

The ureter was much thickened, inflamed, and densely adherent to the surrounding tissues, but stripped easily from the fat, beyond the limits of the periureteritis. Fearing that the accident (breaking off the ureter) which has happened to the other surgeons who have done this operation might become my lot, and wishing to make the course of the ureter more discernible to the finger, I made an opening in it about an inch long and introduced a catheter, which met with obstruction at the point mentioned above as strictured, thus demonstrating from the upper side the stricture that obliterated the calibre of the ureter. Failing to pass the catheter, I proceeded to dissect off the ureter with the index finger, the whole hand being introduced into the wound.

At the base of the broad ligament I encountered the little circular opening with sharp margins mentioned by Kelly. This, I am sure, is an aperture in the fascia. On reaching the uterine artery my finger was turned in the direction of Douglas' pouch, thus getting well away from that vessel, and freely separated the vagina from the peritoneum. Sharp-pointed scissors were then forced through the posterior vaginal vault into the space occupied by the finger, and the blades separated, enlarging the opening, after the method of puncturing large abscesses in this locality. A large ligature was then thrown loosely around the ureter, and its ends passed into the vagina by slipping up a long pair of vaginal forceps from the lower side of the opening. By means of this ligature I drew a loop of the ureter into the vagina. The patient was then turned on her back; the limbs, being extended, were held in the vertical position to prevent interference with the house surgeon, who was preparing the lumbar incision for closure while I was operating in the vagina. My index finger was passed per vaginam into the opening in Douglas' pouch, flexed forward, and worked down the septum between the vagina and bladder, dissecting the ureter free from the former and pulling the anterior vaginal wall well forward. With a pair of scissors an incision an inch and a half in length along the course of the ureter was

made through the anterior vaginal wall as it lay stretched upon the finger; traction upon the loop of ureter protruding in the vagina easily separated it from the uterine artery and the bladder down to its insertion in the latter, while counterpressure was made with the index finger in the wound. It was ligated directly on the bladder and severed close up. As cheesy matter escaped from the cut end, the stump was cauterized

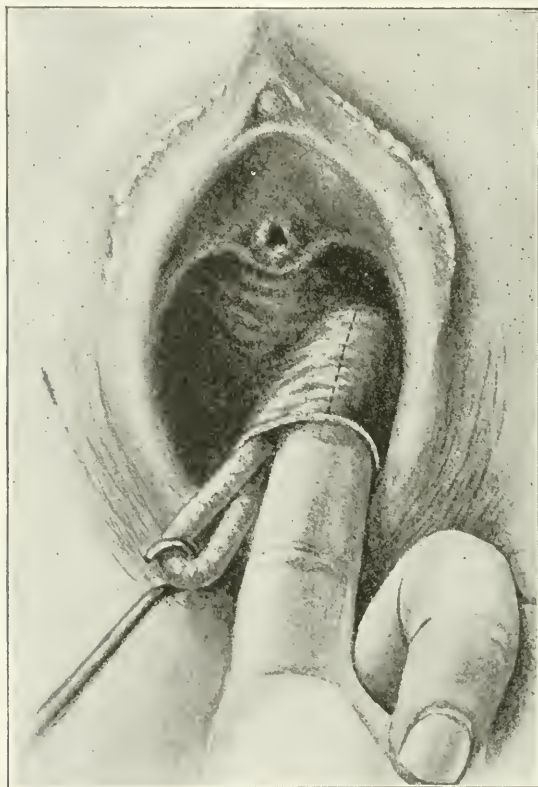


FIG. 2.—Showing ureter pulled into vagina, and line of incision to free ureter to its junction with the bladder.

with carbolic acid, after which the ureter was withdrawn through the lumbar wound.

When applying the ligature, pulling upon the ureter drew the bladder down, infundibuliform, into the vaginal orifice, making a sharp line of demarkation where the two joined. At this point the ligature was placed with accuracy; later it cut through into the bladder, became encrusted with calcareous

deposits, and escaped through the urethra, producing no bad results. Gauze drainage was inserted in the vaginal and lumbar wounds and removed in forty-eight hours. Vaginal wound

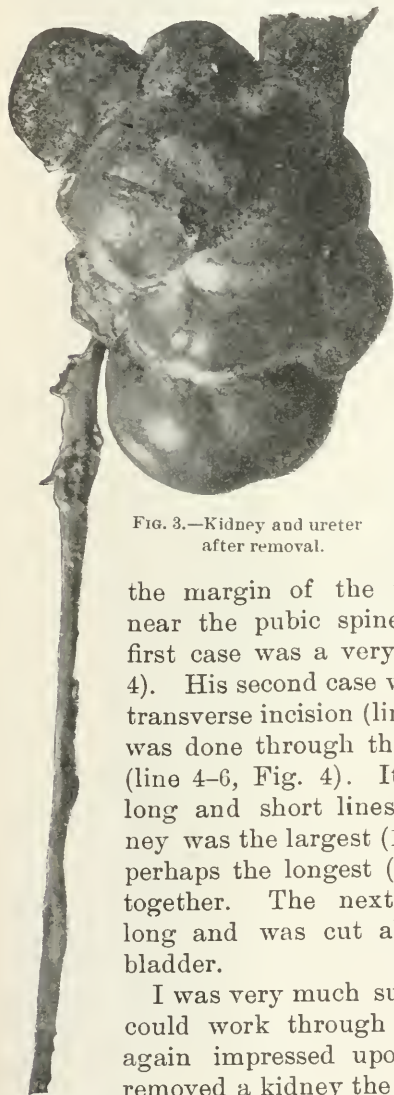
healed promptly without suturing. The abdominal and lumbar muscles were approximated with No. 2 catgut and reinforced by through-and-through silkworm suture. Recovery was uninterrupted, though a shallow sinus in the lumbar incision remains.

Some interest is attached to the change in the length and direction of the incision, showing modifications influenced by the progress of the operation. Fig. 4 gives a very clear idea of their location and direction. Morris, of London, made the largest one, which extended from

FIG. 3.—Kidney and ureter after removal.

the margin of the twelfth rib to a point very near the pubic spine (line 1-2, Fig. 4). Kelly's first case was a very little shorter (line 1-3, Fig. 4). His second case was done through the short or transverse incision (line 4-5, Fig. 4). My own case was done through the shortest incision, six inches (line 4-6, Fig. 4). Its direction was between the long and short lines above mentioned. The kidney was the largest (16 centimetres) and the ureter perhaps the longest (31 centimetres) ever removed together. The next ureter was 19 centimetres long and was cut about 2 centimetres from the bladder.

I was very much surprised to see how deep one could work through a short incision. This was again impressed upon me a week later when I removed a kidney the size of an adult head through a three-inch incision. It was but a number of pus sacs, and was extracted like an ovarian cyst through an abdominal wound after evacuation of its contents, separating the attachments as they appeared in the incision. In this case about



10 centimetres of the ureter were removed, and in tying it off I noticed that the immense cavity extending deep in the iliac fossa laid the ureter bare for half its length, so that the removal of the ureter might have been easily completed through a vaginal opening together with the hand introduced through the lumbar region. The latter would have admitted the hand with very little enlargement.

Not having encountered the difficulty expected in removing the ureter, I feel sure that the incision for nephro-ureterectomy

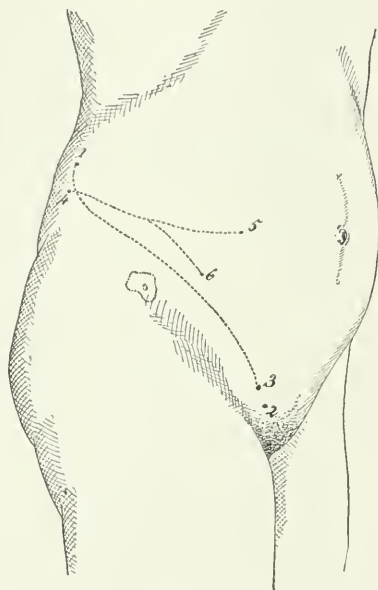


FIG. 4.—1-2, Morris' long incision; 1-3, Kelly's long incision; 4-5, Kelly's short incision; 4-6, Noble's short incision.

should be made with regard to easy and safe extirpation of the kidney, regardless of the condition of the ureter. When the latter requires removal, it may be done through an opening barely large enough to admit the hand, excepting in cases of accident, hemorrhage, etc., or in the male subject. In the latter a short incision above Poupart's ligament or a parasacral incision may be employed for the purpose of ligating the bladder end. It possesses the advantage of less injury to the abdominal muscles.

This is the fifth nephro-ureterectomy and the second case

done by the extraperitoneo-vaginal method, and the only one of these two in which the ureter and kidney were removed in one piece. Of the five operations thus far done, McKosh and Morris had one each, Kelly had two, and my case makes the fifth.

The chief indications for removal of the ureter with the kidney are tuberculosis and extensive suppurations with calculi.¹ In such circumstances, where the secreting surface of the kidney has been destroyed, the ureter is useless and a hazard to life.

Pathological Examination by Dr. Hoke.—Specimen, left kidney, tuberculous, ureter attached. Size, 16 centimetres long, 9 centimetres wide, 7 centimetres at thickest part. Shape, lobulated, cystic, dense fibrous trabeculae between the cysts, the latter eight in number, on surface. Entire kidney cystic, except upper end. Capsule one-quarter of a centimetre thick. Fat around pelvis plentiful, seemingly uninvolved; 31 centimetres of ureter attached. No break in continuity of ureter. First 7 centimetres of ureter $2\frac{1}{2}$ centimetres thick, other parts 1 centimetre thick. First 7 centimetres nodular, caseous in lumen. Longitudinal section with knife. No trace of kidney tissue left. Fourteen cysts, largest at lower end, 5 centimetres in diameter, all communicating except three. Very fluid caseous material in cavities. Fibro-tuberculous trabeculae between cysts forming walls.

Microscopic examination shows:

Thick fibrous capsule; beneath this, numerous giant cells and conglomerate tubercles, alternating with hard area of coagulation necrosis; few isolated sections of uriniferous tubules; few glomeruli left.

Parenchymatous degeneration of epithelium complete. Some of the glomeruli are fibroid. Great increase in fibrous tissue, both in cortical part of section and in medullary part. Epithelium in tubules in the latter are degenerated as in cortical portion.

Nothing left of normal ureter but fasciculi of muscle. Much caseous matter around the lumen, the remainder of the structure being fasciculi of muscle surrounded by fibroid and cheesy tubercles.

¹ Suppurative calculous urethritis.

A NEW METHOD OF TREATING THE URETER IN TUBERCULAR
DISEASE OF THE KIDNEY AND URETER.

BYWILLIAM R. PRYOR, M.D.,
New York.

IT is not my purpose to discuss the relative merits of the various methods of removing the kidney, but rather to emphasize the importance of a complete removal of the ureter where the kidney is tuberculous, and to decide a method by which this can be done and by a very simple procedure. As I like to examine the opposite kidney as well as the other abdominal organs at the time of operation, I prefer to remove the kidney through the abdomen—transperitoneal nephrectomy.

Where the ureter is not diseased its removal is not necessary. But how can this be determined without examining it through its entire length? And, if found diseased, its removal by any other than a blind and clumsy procedure is impossible except through an abdominal incision. I maintain that only after a careful inspection made through a free abdominal incision can the exact condition of the ureter be determined. Inasmuch as the bladder is a distensible organ, to such a degree that anything which will interfere with this faculty of distensibility will bring distress to the patient, it is inadvisable to suture the vesical end of the ureter into the vagina.

Besides, this procedure of Kelly is too complicated to meet with general adoption. If the ureter be diseased and is not removed, the relief afforded the patient will be but partial; so in a case of tubercular kidney with the ureter similarly affected the indication for a complete removal of the ureter is as urgent as of the kidney.

In the case here reported, the fact that around the right (the diseased) ureteral orifice no tubercles were found may be explained as the result of persistent treatment of the bladder for "tubercular cystitis."

Fortunately in the case there was no stricture of the vesical portion of the ureter, and inversion of the ureter was easily done. But had there been narrowing of the ureteral orifice, so that my procedure could not be carried out, there would have

been no impropriety in dilating the constricted portion by introducing a dilator through the open abdominal end of the severed ureter.

The history of the patient is unimportant and had no influence in determining either the diagnosis or treatment.

Analysis of the urine showed: specific gravity 1008; no albumin; no sugar; alkaline; urea 0.6 per cent; tubercle bacilli in urine. By cystoscopy I found a generally injected bladder. Around the left ureter, for the space of half an inch, were many tubercles. The rest of the bladder was free from them. Both ureters were sounded, and a stricture found in the pelvic portion of the right about two inches above the ureteral orifice. No urine escaped from the right ureter during the repeated inspections. The total urine for the first day was thirty-two ounces. Occlusion of the right ureter did not occur to me, though the stricture was determined.

The right kidney could not be felt, but the left was low down, movable, and enlarged.

I made the diagnosis of left tubercular ureteritis and nephritis—an ascending process. Three examinations of bladder and abdomen were made under narcosis. The patient was in very fair general condition, and no tubercular process could be discovered in any organ other than the bladder. December 18, 1899, I operated. The incision was made in the left semi-lunar line and the peritoneal cavity entered. Upon examining the left kidney I found it slightly enlarged, but without evidence of tubercular disease. The peritoneum over the left ureter was incised and this tube inspected. It was not enlarged, and its peristalsis was rhythmical and pronounced.

Upon palpating the right kidney I found it very much enlarged, nodular, and firmly fixed within its capsule high up, part of it lying beneath the liver. Over it lay a much-dilated colon.

The incision was enlarged sufficiently for me to inspect the right ureter. This stood out beneath the peritoneum as a hard cord, and on splitting the peritoneum overlying it I found absence of ureteral peristalsis. I had, therefore, made a left Langenbeck incision and found that I had to remove a right kidney.

The incision was enlarged to the xiphoid cartilage above and to the pyramidalis muscle below, the rectus being severed wholly above only, and the deep epigastric artery not wounded below. After removing the right kidney by most difficult and

painstaking dissection—for it was adherent to all surrounding structures—I began the enucleation of the ureter.

By blunt dissection I freed the ureter from its peritoneal covering for the upper half of its course. I then liberated it from the pelvic brim to the point above where it was free.

It was then drawn out of its bed and held in the left hand. Upon drawing it taut its course in the pelvis was easily seen.

I liberated it from its attachments by means of my finger until I felt the pulsations of the uterine artery. The peritoneum anterior to the artery was incised and the ureter drawn in front of the vessel. The ureter now remained attached to the bladder only. I rejected all methods of treating such an organ as unsatisfactory, and determined upon one of two plans: either to cut the ureter short and close its end, or else to invert it into the bladder, much as is done with the appendical mucosa.

I adopted the latter plan.

The ureter was cut off about three-quarters of an inch from the bladder. I then passed a long surgical probe into the bladder and through the *urethra*. It was firmly held by an assistant.

The eye of the probe I sutured with silkworm gut to the walls of the ureter, using one suture to fasten each side of the probe's eye to the corresponding side of the ureter.

I then drew upon the probe, pulling it out of the urethra, and in this way *caused the ureter to turn inside out into the bladder*.

The probe was then bent over the pubes in such a way as to prevent its slipping back, and the soft parts beneath it were protected from pressure by iodoform gauze. The cut surfaces in the peritoneum were united and the abdomen closed.

After the operation the catheter was passed every two hours, so as to prevent over-distension of the bladder and reflux through the amputated ureter.

The ureter sloughed off, as I expected it would, and the probe was drawn out in the third week.

It is unnecessary to dwell upon the minor details of the treatment.

Upon examining the kidney it was found riddled with tubercular abscesses. The pelvis of the kidney was filled with muddy urine. The ureter was completely obliterated two inches above the pelvic brim, and above this was somewhat dilated. Throughout its length its walls were greatly thickened, but the tubercular process was limited to the mucosa.

Inversion of the ureter brought raw surfaces into apposition, and union between these ensued, thus causing obliteration of the inverted tube. The pressure induced by the inversion caused the tube to slough away; but, even had it not done so, I would have had it where it could be best treated—in the bladder.

Cystoscopy with my instruments has repeatedly shown all traces of the ureter thus treated gone except a slight elevation or teat of tissue at the site of the ureter.

Last observation March 15, 1900.

The convalescence was without incident, and the ugly abdominal wound healed primarily.

121 EAST THIRTY-EIGHTH STREET.

EXTERNAL PALPATION VERSUS VAGINAL EXAMINATION IN NORMAL LABOR.¹

BY

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As long as septic infection continues a reality in the parturient woman, just so long will its various methods of prevention be a subject to occupy the attention of the obstetrician. I hope that an apology may not be demanded of me for tramping over ground that seems to have been so thoroughly explored and upon which much has been written. This subject of puerperal infection continues to occupy much space in the medical journals of the day. Especially does it behoove us to give great care in its prophylactics, as medical men of eminence still disagree as to its curative treatment.

A writer in the *Medical Record* for 1898 has very aptly divided the obstetric history of the century into three periods: "The first, the Pre-antiseptic period; the second, commencing with the long-neglected reform of Semmelweiss, the Antiseptic period; and the third, or the present one, the period of Asepsis."

It is to this third period that prophylactic measures are especially applicable. If the parturient tract can be kept aseptic, we will rarely be called upon to treat this most

¹ Read before the Washington Obstetrical and Gynecological Society, December 15, 1899.

dreaded of all diseases of the puerperium, especially as the bacteriologist has taught us that the organism must enter from the outside. Since the organisms normally present in the vagina have been found harmless, and it has been shown that the vaginal secretion possesses decided germicidal properties, we see why the antiseptic douche not only fails to lessen septic infection, but that it actually encourages it by washing from the vagina a normal secretion whose germicidal power is decidedly more potent. Therefore the routine vaginal douche has been abandoned. Thus it is seen that in normal labor Nature's method of protection cannot be improved upon. With the vaginal douche discarded, how then may infection be introduced? The routine habit of a large number of physicians, when called to a case of labor, is to at once thoroughly wash (?) their hands with soap and water, and probably with some antiseptic solution, either bichloride of mercury or carbolic acid, dry them on a towel, and immediately invade the vagina and possibly the cervix uteri with the finger—to learn what? As some text books tell us, to explore the pelvis for any abnormality and learn the presenting part of the fetus—this, too, in simple normal labor. This hasty obstetrical finger may carry with it not only death to the patient, but untold misery to an entire family.

The vaginal secretions are not only antagonistic to the infecting organism, but, after rupture of the membranes, the cervicovaginal canal is flushed with amniotic fluid, and the descending fetus is at all times closely grasped by the ostium vaginae, thus effectually preventing the entrance into the uterus of infecting material. In the light of the safeguards with which Nature has protected the uterus, there is no need for the douche either before or after a normal labor. Why the need for vaginal examination at all in this class of cases? It is possible to get nearly all the information required by external measurement and palpation. As an argument for frequent vaginal examination, it might be said that, unless these examinations are made, some important complication might be overlooked. This might be so if we had not other means for acquiring this information. In delayed first stages, when the life of the mother and child *may* be threatened, it may be necessary not only to introduce the hand into the vagina, but into the uterus, for the purpose of making an accurate diagnosis. But who would advise this as a routine procedure?

The management of normal labor may seem a prosy subject, but when we realize that its mismanagement continues to form

a prolific field from which is drawn a large amount of gynecological work, it becomes a very serious matter.

The difficulty of rendering the hands and nails aseptic is so great that many gynecologists and obstetricians have resorted to the use of rubber gloves in their work; but even if you have an aseptic gloved obstetrical finger, it is still difficult to render the vulva and external genitals aseptic, and the danger remains of carrying the infecting organism from the external genitals to the uterus. The possibility of this danger exists with every digital examination.

When engaged to attend a primipara the physician should make it his duty, at not later than the third or second week before the expected labor, to make, as a routine procedure, careful external measurements of the pelvis, thorough examination by external palpation, as well as a digital examination of the pelvis, either per vaginam or per rectum, and, if by the latter route, the bowels should, of course, have been previously well emptied. This should be done in multiparæ who have had tedious or complicated labors. By this examination not only is the viability of the child determined, but multiple pregnancy, the position of the fetus in the uterus, and the condition of the genital canal.

The great advantage of making the diagnosis of fetal presentation and position by external palpation is that it can be done with absolutely no risk of infection to the patient. Not only can abnormal positions be determined, but some of them may be converted into a normal vertex position by external version. This the writer has done a number of times. If the sacro-pubic diameter measures nineteen centimetres or more, it is safe to say that the pelvis is ample. The diagonal conjugate is best measured by introducing two fingers in the vagina, with the tip of the second finger against the most prominent part of the sacro-vertebral angle, marking the point where the sub-pubic ligament cuts the radial border of the examining hand, and subtracting one-half to three-quarters of an inch for the true conjugate diameter of the pelvis. In examining all pregnant women the hand should be scrubbed as thoroughly as possible in soap and water and then with bichloride solution. The hand should not be wiped unless on a sterilized towel; as a rule, a lubricant is not necessary, but if it is used it should be sterilized also.

In running the palmar surface of the hand over the abdomen the location of the fetus will be learned almost by the first touch. The location of the fetal poles is the next step. The

lower pole, which is usually the head, may be easily determined by standing with the back to the mother's head and placing the hands over the lower segment of the uterus, with the little fingers one or two inches above the symphysis pubis; the finger tips are forced gently down into the brim of the pelvis. If the pelvic excavation is filled before labor has begun, then the presenting part is the vertex, as no other part sinks into the lesser pelvis until labor does begin. When the head lies above the brim it is less easily palpated. The head is easily distinguished from the breech by its greater mobility, by its solid, globular shape, and by the presence of a sulcus between it and the fetal trunk. Ballottement of the head is frequently possible even when it lies above the inlet.

When the head is in the inlet one side of the brim will be found more completely filled than the other. On one side of the brim is the frontal portion of the head; on the other the nape of the neck occupies the pelvic brim. That side of the pelvic tumor most prominent is the sinciput. The sinciput to the right indicates a left position. The cephalic prominence is most marked in occipito-posterior positions.

While with a well-flexed head the frontal extremity is most prominent, with the partially extended head there is very little difference to be noted, and in face presentation the occiput is most distinct.

When the vertex presentation has been determined, by moving the hand upward toward the fundus with firm, gentle pressure a slight obstruction is found, which is the anterior shoulder. If the shoulder is near the median line, within one or two inches of it, the occiput is usually in anterior position; if three or more inches from the median line, the position is usually posterior. If the shoulder is to the right of the median line, the occiput is usually in right position; if to left, the occipito left position is indicated.

The positions of the fetal heart sounds are of much diagnostic value. These sounds are most audible over the upper part of the back of the child's chest, covering an abdominal area of about three inches. The location of the heart sounds usually serves to distinguish left from right positions and anterior from posterior positions. In posterior positions the heart sounds are very faint or rarely may not be heard at all. The diagnosis of presentation and position by abdominal palpation is not quite so easily made after as before labor begins. Palpation of the abdomen must be suspended when uterine contraction takes place.

In breech presentation it is at once noted that there is no transverse sulcus, as found when the head is in the pelvis, and all the other signs of head presentation are absent. As a confirmation of this diagnosis, the head is found in the fundus of the uterus. The differential diagnosis between head and breech is always important and should always be made. The diagnosis of transverse presentation is usually easily determined; the long axis of the child is felt to be transverse. As a further aid in confirming the diagnosis of position, the condition and presentation, the fetal heart sounds are of much value. They also inform us of the condition of the child and help us in the recognition of multiple pregnancy. In vertex presentation the heart sounds are most audible over the back of the child and below the mother's umbilicus. In breech presentations the sounds are plainly heard when the back is anterior, but are heard with great difficulty if the back is posterior. In weighing evidence furnished by the fetal heart sounds, it must not be forgotten that sounds are better conducted by solids than liquids, and that the exact situation of the fetal heart sounds corresponds with that portion of the back or chest which happens to be in contact with the uterine wall. For this reason the fetal heart sounds may be quite distinct, and a few months later be scarcely audible because of the change in the relation between the child and uterine wall. The fetal sounds may, therefore, change with the change in position of the mother. There are many pathological conditions which may be determined by palpation. A pendulous abdomen in the first pregnancy would suggest pelvic deformity. Hydramnion would be recognized by increased size and permanent tension of uterine tumor, by preternatural mobility of the fetus, and usually by the presence of suprapubic edema. Hydrocephalus may be recognized if the head is sufficiently enlarged to give rise to difficulty in delivery. Hydramnion in single fetation may sometimes be mistaken for twin pregnancy, especially as multiple pregnancy is usually associated with excess of liquor amnii. In single fetation with hydramnion there is greater mobility of the fetus. In multiple pregnancy there is a larger number of small parts and these are more widely distributed. The palpating of two fetal heads, one in the pelvic excavation and one in the upper uterine segment, together with two fetal heart beats at different rates, makes the diagnosis positive. Two fetal poles more than twelve inches apart cannot belong to the same child.

The two positions which occur most frequently are occipito-left anterior and occipito-dextro-posterior, so that it is comparatively safe to make a diagnosis of O. L. A. if the back of the fetus is to the left, and O. D. P. if the back is to the right.

Much stress has been laid upon noting the progress of labor, which usually means the amount of cervical dilatation; but in normal cases, if the head is advancing, it is fairly safe to say that the cervix is dilating. We know, of course, that in primiparæ the head may be descending into the pelvis and yet the cervix be but slightly dilated. If the head, then, is delayed in its descent, it may be necessary to aid in dilating the cervix.

The extent of cervical dilatation, as determined by vaginal examination, has become an index of the expected duration of labor, and, for the purpose of economizing the time of the obstetrician, is freely made use of. The question is, are we justified in subjecting a woman to these risks in normal labor, knowing as we do the danger of infection? So long as labor is progressing satisfactorily, and we have previously gotten the necessary information regarding the pelvis, both by measurement and examination, is it not wiser to defer the vaginal examination until there is some need or indication for meddling—and then interfere only after the hands and external genitals have been thoroughly washed and scrubbed with soap and water, and then with one of the antiseptic solutions, and finally in boiled water?

To conduct a case of labor ideally you must previously eliminate the existence of pelvic deformity or other abnormalities, the progress of labor must be observed by extra-vaginal methods, and after delivery nothing must be permitted to enter the vagina.

1015 SIXTEENTH STREET, N. W.

REMARKS ON THE OPERATIVE TREATMENT OF PROLAPSE.¹

BY

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THE term prolapse of the uterus has come to mean a condition where the cervix uteri approaches more nearly the vagi-

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, February 15, 1900.

nal orifice than is normal. This may be a misleading term. The so-called prolapse which is due to hypertrophy of the uterus is not, strictly speaking, a prolapse. A true prolapse is one in which the uterus as a whole approaches the vaginal orifice, thus altering its anatomical relation. We can retain the term, and at the same time keep an intelligent classification in view, by dividing prolapse of the uterus into simple or true, and hypertrophic or false.

Simple or true prolapse occurs as a result of one of many causes. It occurs most commonly in aged women, and in unmarried women of low vitality who have led lives of hard labor, or in women whose pelvic floor has been destroyed by tears or injuries. It occurs in one of three varieties, according to the degree of prolapse—first, slight downward displacement; second, where the cervix approaches within one or two inches of the vaginal orifice; third, where the cervix, and frequently the entire uterus, carrying the bladder and rectum, protrudes through the vaginal orifice.

Hypertrophic or false prolapse occurs in one of two varieties—a hypertrophic elongation of the infravaginal cervix or of the supravaginal portion of the cervix. Of this variety, or false hypertrophy, I have but little to say, for unless they cause marked symptoms they had better be let alone. If there is any indication for interference, amputation of the elongated cervix will bring about a satisfactory result. Of the simple variety of true prolapse, the treatment will depend upon, first, the cause of the prolapse; and, second, the degree. In the second variety, which is of a severer degree, more radical measures must be instituted. There are three indications to be met as a rule: the vaginal canal and the vulvar outlet must be restored to its normal condition, and the enlarged or subinvolted uterus corrected, and the uterine support applied from above.

In repairing a torn perineum the object to be secured is the restoration of the pelvic floor. The Emmet operation, which unites the torn ends of the levator ani muscle and restores the pelvic fascia, meets the indication. The repair of the torn cervix and the curettement of the uterine canal (in the absence of disease of the uterine appendages) will aid in the process of involution.

To support the uterus from above there are four methods of procedure to be considered, three of which are to be mentioned in this connection only to be condemned. The results of the operation devised by Alexander show that it will not support

an enlarged or boggy uterus, nor will shortening of the round ligaments intra-abdominally.

Vaginal hysterectomy not only will not correct the condition, but in many, if not in all, instances will be followed by prolapse of the anterior and posterior vaginal walls to an aggravated degree, to the extent, at least, of occasioning more discomfort than complained of before. The uterus should only be removed when the site of a pathological lesion sufficient to warrant it.

We have left ventrofixation, and, if anywhere, it is here that the indication for the operation arises. In women past the child-bearing period the sutures can be placed between the cornua of the uterus. If the possibility of pregnancy still exists, then the uterine sutures should be placed on the anterior surface, about one inch below and midway between the cornua, so that the pregnant uterus is free to enlarge.

In the third variety, when the prolapse is complete, in addition to ventrofixation an anterior or posterior colporrhaphy, or both, may be necessary. The cystocele is corrected by the removal of a sufficiently large oval flap, denuding the mucous membrane and submucous tissue, by which the muscular coat of the bladder is exposed. The incision extends from immediately behind the meatus urinarius to the cervix uteri. Two rows of catgut sutures appose the edges of the incision, the deeper taking in the submucous and the muscular coats of the bladder, and the superficial the mucous membrane. The denudation of the anterior vaginal wall in the correction of the cystocele, and of the posterior vaginal wall in the repair of the torn or relaxed pelvic floor, is made with a scalpel.

The repair of the anterior vaginal wall is the first step in the operative technique; when this is accomplished the rubber gloves worn are discarded and a new pair, previously sterilized, put on. The next step is the ventrofixation, and, lastly, the perineum is restored.

The operation upon the posterior vaginal wall is done after the manner of Emmet, except that the denudation is made in one large flap with a scalpel, and includes the submucous tissues, thus exposing the muscular coat of the rectum and the fibres of the levator ani muscle which have been torn from the side of the vagina, thus occasioning the sulci. There is no doubt that this method of operation gives a better guarantee of apposition of the torn fibres of the levator ani muscle and therefore a better ultimate result.

TWO CASES OF EXTRAUTERINE PREGNANCY:

- (A) TUBO-OVARIAN PREGNANCY FOLLOWING RELAPSING APPENDICITIS;
 (B) RUPTURED TUBAL PREGNANCY WITH SYMPTOMS OF INFECTION
 TREATED BY VAGINAL PUNCTURE.¹

 BY

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THE two cases of extrauterine pregnancy, which recently have been admitted to the gynecological department of the University of Pennsylvania, present two points of interest: the first bears upon the method of treatment, the second upon the etiology of the ectopic pregnancy, which appears to have been due to a contiguous inflammation of the Fallopian tube originating in a relapsing appendicitis.

In the first case the patient was in a profoundly depressed state, exhibiting markedly septic symptoms, and was in no condition for an abdominal operation. The history of the case was as follows:

N. C., age 28 years; married three years; no children, no miscarriages. Omitting the details of her previous history, which have no special bearing upon the present illness, I may say that she missed her first regular menstrual period August 10, and about the middle of the month came to the conclusion that she was pregnant, because of the cessation of the menses and because she suffered from morning sickness. September 1, while handling heavy milk cans, she was struck a violent blow in the left lower abdomen, which was immediately followed by sickening pains in this region and a slight uterine hemorrhage. Although the pain and hemorrhage grew progressively worse, she kept at work until the end of the month, when she was ordered to bed by her physician on account of threatened abortion, all of the symptoms of which were now well developed. At the end of a week, the impending abortion apparently having been thwarted, she left her bed and assisted actively in helping her family to move, but again

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, February 15, 1900.

was forced to go to bed in four days on account of the return of all of her former symptoms.

The bearing-down pains were now nearly constant, and large, foul-smelling clots of blood were passed by the vagina. About this time the uterus was thoroughly curetted by her physician, and the metrorrhagia ceased and was followed by a scant, reddish-yellow, odorless discharge. Subsequent to the operation her abdomen became very tympanitic and tender, and she had severe lancinating pain, especially in the hypogastric region, which was associated with frequent nausea and bilious vomiting, obstinate constipation, and painful and frequent micturition. The acuteness of these symptoms subsided somewhat after several days, but remained more or less continuous until her admission to the hospital. Since the beginning of her attack she has rapidly lost flesh and strength. Three weeks ago the uterus was again curetted, and one week ago a uterine douche was given, but both failed to relieve her.

Subjective Symptoms on admission to the Hospital.—Patient feels very weak and tired, is subject to hot and cold sensations, has complete loss of appetite, and there is nausea and vomiting invariably after taking food. Urination is frequent and burning, and the bowels are obstinately constipated. There is a distressing feeling of over-distension in the lower abdomen, with occasional sharp, lancinating pains in the hypogastric region.

Objective Symptoms.—Temperature 100° to 102° F.; pulse small, low tension, fair strength, rate 94 to 108 beats per minute; respirations average 24 to the minute. Extreme pallor of the skin and mucous membranes; markedly pinched expression and great emaciation; tongue dry and covered with a thick yellow fur; frequent vomiting of undigested food and bile. Examination of the lungs shows increased tactile and vocal fremitus, increased resonance, and loud breath sounds, due to the easy transmission of the normal sounds through the thin chest walls. The heart is slightly enlarged to the left, the apex beat being greatest in the fifth interspace near the nipple line. The heart sounds are somewhat valvular in character, and there is a slight accentuation of the pulmonic second sound; in the third interspace between the left sternal and nipple line a loud, localized blowing systolic murmur is heard. Pulsation is distinctly felt in the cervical veins, and a *bruit le diable* is heard on both sides, especially on the right. The skin of the abdomen is very greatly stretched and of a

bluish, glossy appearance, and there is great rigidity, especially on the left side. There is marked tympany above a line drawn from one inch above the anterior superior spine of the right ilium, through a point one inch above the umbilicus, to a third point one and a half inches above the upper border of the left ilium. Percussion below this line gives absolute dullness, and palpation of this area reveals a hard, apparently non-fluctuating mass, especially prominent above the symphysis and in the left iliac region. Pressure upon this area gives dull, agonizing pain, more marked in the left side.

Gynecological Examination.—Vaginal outlet nulliparous. Perineum and vagina normal. Uterus is anteflexed and presses the bladder against the symphysis; it is only slightly movable, its range of mobility being limited by a mass posterior to it. The vaginal fornices are hard and indurated, especially to the left and posteriorly. In the latter situation there is moderate bulging, and the vaginal finger at this point receives a distinct percussion-wave impulse from the abdominal hand.

Treatment.—On account of the serious condition of the patient, it was thought best to keep her under observation for a few days, during which time she was given tonic and stimulating treatment, consisting of strychnine, Bland's pills, occasionally a brisk purgative, hot fomentations, and hot flaxseed poultices to the abdomen; in addition to which a copious hot vaginal douche at 115° F. was given thrice daily.

Three days after her admission to the hospital the patient began to menstruate, and during this time suffered agonizing pain in the lower abdomen. For five or six days subsequent to this there was marked improvement, the pulse becoming stronger, the nausea and vomiting ceasing, and the abdomen being less tender to pressure. About this time, however, her symptoms again became less favorable; but she soon regained the ground which apparently had been lost, and in fifteen days from her admission to the hospital there was considerable improvement in the abdominal symptoms. At this time it was deemed safe to proceed with an operation. On examination under anesthesia a peculiar crepitant feeling was noted on pressure between the rectal and abdominal examining hands. The mass was slightly fluctuant, and, although producing no bulging in the vaginal fornix, the transmitted wave from the abdominal hand could nevertheless be detected plainly at this point. On account of the fluctuant temperature it was thought

possible that the pelvic mass was an abscess following a miscarriage, although the history and examinations pointed more strongly to ectopic pregnancy. The puncture of the mass per vaginam was deemed advisable, first, because of the great anemia and depression of the patient, which precluded the possibility of a serious abdominal operation; second, distinct fluctuation posterior to the uterus; third, active infection of the blood clot, which simulated a pelvic abscess; and, fourth, the length of time subsequent to the rupture of the tube, permitting a complete walling-off of the infectious matter by peritoneal adhesions from the general abdominal cavity.

On puncture in the median vaginal line, posterior to the cervix a large quantity of foul-smelling blood clots were evacuated, followed later by a fetus five centimetres in length. The placenta was almost as large as the hand, but was removed without special difficulty. The cavity was thoroughly irrigated and packed with gauze.

Contrary to expectations, the patient stood the effects of ether splendidly, and during the operation the pulse never went above 100.

The subsequent notes of the case are as follows: November 20, three days after operation: Gauze removed and cavity thoroughly irrigated. The temperature is still hectic, and there is still induration and dulness on percussion over the lower abdomen, which, however, is much less than before operation. November 21: Gauze drainage removed and replaced by a rubber tube, which is held in place by a vaginal gauze pack. There is a free discharge of a bloody fluid; the anemia is less. November 25: As a result of daily irrigations the discharge has become less. Dulness and induration over lower abdomen greatly diminished. Temperature ranges between 98.2° and 99°; pulse strong and full. Her appetite is enormous, her tongue is clean, and her bowels are regular. Examination of the blood shows rapid recovery from its impoverishment. December 1: Slight evening rise of temperature to 99°. Patient is rapidly gaining in flesh, color, and strength. The ectopic sac is still being drained, and the discharge amounts in twenty-four hours to about one fluidounce of thin, yellow, non-offensive pus. The abdominal mass is almost imperceptible. The systolic murmur, which was very loud upon admission, is less audible, and pulsation of the cervical veins is no longer noted. December 9: All drainage removed; vagina irrigated twice daily with normal salt solution; no dulness, induration, promi-

nence, or tenderness over the area noted on admission. December 12: Patient was discharged cured to-day. She is now in good flesh, her complexion is of a healthy color, and the blood count is nearly normal. There is no longer any pain, tenderness, or induration of the abdomen. Her bowels are regular and digestion is perfect. She expresses herself as being in as vigorous health as ever in her life. The hemic murmur is still plainly heard, but softer. The uterus is now in good position and freely movable; the right vaginal fornix is free; on the left side and posteriorly there remains some induration, but this is confined to the true pelvis. Examination causes no pain. On being discharged from the hospital she was given a prescription of strychnine, one-sixtieth of a grain, to be taken twice daily, and asked to report in a few weeks. December 22: Patient reported at hospital for examination. General health better than at time of her discharge. January 12, 1900: Returned for examination. Vigorous health continues. Hemic murmur is no longer audible, and the outlines of the heart are normal.

A review of the blood chart before and after her operation shows the following:

Date.	Red blood cells.	Hemoglobin.	White blood cells.	Highest temperature.
November 1, 1899. (Before operation.).....	2,190,000	30 per cent	16,000	100.5° F.
November 9, 1899. (Before operation.).....	2,200,000	30 per cent	16,800	101.5° F.
November 18, 1899. (After operation.).....	2,250,000	32 per cent	6,480	99° F.
November 21, 1899. ...	2,850,000	33 per cent	11,480	100.5° F.
November 24, 1899.....	3,730,000	41 per cent	10,400	99.5° F.
November 30, 1899.....	2,975,000	45 per cent	13,450	100.2° F.
December 3, 1899.....	3,510,000	65 per cent	7,800	99.3° F.
December 8, 1899.....	4,210,000	74 per cent	5,120	98.2° F.
December 12, 1899.	4,450,000	85 per cent	8,420	98.2° F.
December 22, 1899.....	4,250,000	93 per cent	6,000	98.2° F.
January 12, 1900.....	4,600,000	100 per cent	7,460	98.2° F.

One of the most interesting phenomena in this case is the rapid increase in the percentage of hemoglobin and the number of red blood corpuscles, which showed marked improvement at each blood examination subsequent to the operation. Another point which is of special interest is the study of the leucocytosis, which is noticed as an accompaniment of the hectic temperature. As soon as this temperature reaches the

normal the number of leucocytes also drops to the normal and continues practically so throughout her convalescence.

From the standpoint of curative treatment I look upon this case as an exceptionally brilliant demonstration of what may be accomplished by vaginal puncture in properly selected cases. In this case the patient's symptoms rapidly disappeared and her general condition improved steadily from the day of her operation.

It is especially in this class of extrauterine-pregnancy cases that vaginal puncture is indicated. In cases of recent rupture when there is free blood in the peritoneal cavity, this procedure is certainly not advisable; but when the blood has become encapsulated and, as in this instance, is infected, and the patient is in a profoundly depressed physical condition, no abdominal operation is justifiable when this simple procedure, free of shock, may be instituted.

TUBO-OVARIAN PREGNANCY FOLLOWING RELAPSING APPENDICITIS.

The second case which I present is of interest from the etiological standpoint, for the history points very strongly to the involvement of the Fallopian tube on the right side by contiguity from the vermiform appendix.

The patient has a typical history of relapsing appendicitis, and the ectopic pregnancy followed after the third attack. The development of her present condition is as follows: Up to seven years ago she was healthy, although never robust, when she had an attack of la grippe, followed by severe pain in the right side in the region of the vermiform appendix. This continued quite acute for five days, being accompanied by considerable elevation of temperature, when it subsided and the patient was again able to leave her bed. The pain, however, continued in that site, but was not of such an acute character. This condition lasted for about six months, when she was again seized with an attack similar to the first, which lasted about a week, when she became very much better and continued in fairly good health until four months ago. At this time she again suffered severe pain in the right side, after what appeared to be a normal menstrual period. At this time the tenderness was situated lower in the pelvis and was well localized over the ovarian region. Coincident with this attack a tender mass about the size of a hen's egg was noticed in this region by her physician. For the last four months menstruation has been

very frequent, the longest interval between periods being only three weeks, and frequently the flow would occur every week. The flow was always painful and profuse. The pain in the right ovarian region has been constant and is of a dull aching, changing at times to a sharp, lancinating character. The swelling is also still perceptible, and she still has dysuria. There is no history of vomiting or dizziness. Since the attacks began she has been under the care of her physician, who has carried out a very thorough line of local treatment, but which, however, has been absolutely ineffective in controlling the pain.

The gynecological examination was as follows: Vaginal outlet considerably relaxed; cervix normal; uterus in ante-flexion, normal in size, fully movable; left ovary and tube normal; on right side the Fallopian tube is distended and is apparently fused into an inflammatory mass with the ovary. This mass is slightly adherent, but may be moved freely about in the pelvis. Vermiform appendix not palpable. The tubo-ovarian mass is dense, non-fluctuating, and feels like a solid tumor of the ovary.

As there was no characteristic history of ectopic pregnancy, the condition was looked upon as a tubo-ovarian inflammatory mass and abdominal section was recommended.

The abdominal incision revealed a tubo-ovarian mass of dense, hard consistence, closely enveloped by the omentum, from which numerous adventitious vessels were projected into the tumor. On separation of the omentum, part of which was excised, the tube and ovary were found intimately fused together. The ovary was not entirely involved, the inner two-thirds being normal. On account of the peculiar purplish hue of the ovarian mass a diagnosis of tubo-ovarian pregnancy was made. The outer pole of the ovary and the tube were excised. On section of the fusiform end of this mass in the laboratory a small embryo two and a half centimetres in length, enclosed in its envelope, was found. After the removal of the tubo-ovarian tumor a careful examination of the vermiform appendix was made, and, after some little difficulty, it was found embedded in adhesions beneath the cecum, and had been in close relationship to the upper surface of the tubo-ovarian mass. The lumen of the appendix was completely obliterated, and the entire organ had shrunk to a small, wiry, hard cord.

In this case there can be little question but that the tubo-ovarian inflammation was secondary to the relapsing appendicitis, for there was absolutely no evidence of inflammation on

the opposite side, the tube and ovary being perfectly normal. Then, too, the chronic character of the appendicitis and the more acute involvement of the tube and ovary would point strongly to the latter being secondary to, but dependent upon, the former. On first inspection it appeared that this was a true case of ovarian pregnancy, but Dr. Williams has examined the specimen and so far has not been able to confirm this diagnosis. It is therefore most likely a simple tubo-ovarian pregnancy, fecundation having occurred either in a developing follicle from which the embryo has grown out into the tube, or the whole developmental process may have occurred solely in the tube.

The chief point of interest, therefore, is the probable bearing of the relapsing appendicitis upon the etiology of the ectopic pregnancy, the relationship of cause and effect being very patent so far as the clinical history of the case is concerned.

218 SOUTH FIFTEENTH STREET.

DEATH AFTER OPERATION POSSIBLY DUE TO UNSUSPECTED INTERSTITIAL HEPATITIS.

BY

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IN a recent operation for a comparatively slight pelvic disorder, an "old salpingitis," with the patient apparently in good condition, a fatal result appeared to be due to unsuspected cirrhosis of the liver.

The perfection of surgical technique, comprising all that is meant by this term, is now so far advanced that we can almost eliminate sepsis as a cause of mortality, yet there is a percentage of mortality which appears to bear out the old adage that it is the "unexpected which happens."

We were formerly taught that any heart lesion, as indicated by a "bruit," or any irregular action of the heart, negatived operation, or at least indicated serious danger from anesthesia. We had the same idea about the presence of albumin or casts in the urine, and only recently can it be said that we have approached to a relatively correct interpretation of the results of urinary examinations. In passing we can but allude to the

vast number of operations performed successfully upon patients with known heart and kidney lesions.

It must indeed be a serious if not absolutely alarming condition of either of these organs which would suffice to stay the hand of the surgeon should an emergency demand immediate treatment.

The well-known cases of heart or kidney disease have never proved fatal during anesthesia or immediately after operation, in the writer's experience; but, on the contrary, in a small number of cases, fatty degeneration of the heart or certain forms of nephritis have contributed to an unexpectedly fatal result. Now for the first time we have to note an unexpected death after operation in a patient with neither of the organs seriously involved which are usually thought of first importance to the patient who is subjected to an operation of more or less danger.

CASE —Mrs. Mary B., age 24, colored, was admitted to Columbia Hospital January 10, 1900. Family history negative. She had been married five years; had one miscarriage (in 1896), but no children at term. Menstruation had been regular, continuing six days, and always preceded by pain. She complained of pain, chiefly in the right ovarian region and back, but which was not increased by change of position or upon standing. Her uterus was retroverted and both ovaries and uterus firmly adherent low down in the pelvis, a result of a former pelvic peritonitis. Her lungs were normal. Her heart appeared to have a very slight mitral insufficiency. Her spleen and liver appeared to be of normal size, and there was nothing which would deter any surgeon from operating. She had been complaining of her pelvic pain for at least one year, and it was thought best to liberate the adherent organs through an abdominal incision. The examination of her urine gave negative evidence only. The amount of urine was thirty ounces per diem, specific gravity 1022; urea nine grains to the ounce. No casts or albumin. The operation was done on January 13 under my supervision. Nothing unusual or very difficult presented, and after the separation had been accomplished the uterus was "suspended" to the lower end of the incision and the patient put to bed in a perfectly satisfactory condition.

Her highest temperature was 100° F. on admission, January 10; highest temperature after operation, 99.8° F. on 14th. Pulse was 102 on admission, then 68 to 80 until operation, then 96 to

108 for two days, and back to 94 on the 14th and 15th; on the 16th, the day preceding death, it rose to 100, and to 136 on the 17th. The temperature was about normal on the 15th, and subnormal on the 16th and 17th.

The patient did perfectly well until the night of January 15, the third day after operation, when she was quite restless and slightly delirious. On the 16th she had grown very much excited and hysterical; would scream loudly and had to be restrained. There were occasional lucid intervals, which would be succeeded by a relapse into unconsciousness and, later, deep stupor. A diagnosis of meningitis was suggested, but, as may be seen later, was not confirmed. Her respirations were quite frequent and at times irregular, but not of Cheyne-Stokes variety. There was no distinct convulsion at any time, and the only convulsive movements were irregular twitching of the lower extremities. Her pupils were widely dilated after the onset of the alarming symptoms. Her skin being very dark, it was impossible to discover any discoloration or pigmentation. Neither did the conjunctivæ show any important change in color or appearance. In short, there was no suspicion of liver disease of any kind until the autopsy disclosed the only discoverable lesion, (cirrhosis) interstitial hepatitis.

Record of Autopsy by Dr. Carroll, pathologist to the hospital.—Autopsy two hours after death. Operation wound united and perfectly healed.

Brain.—Removed and carefully examined. No lesions of blood vessels. No exudate. No excess of fluid in ventricles. No hemorrhage into brain substance. Normal in every respect.

Omentum.—Moderately injected; the tissues in the pelvis were also somewhat injected.

Abdominal Cavity.—Contained no excess of fluid, and there was no evidence of inflammation beyond the injection above mentioned. Stomach, intestines, and pancreas normal.

Liver.—Perhaps a little reduced in size, of very firm consistence, and presented a very marked nutmeg appearance, except that the markings were very regular and uniform. The centres of the lobules presented as pinhead-size reddish or reddish-brown areas surrounded by a whitish or grayish zone of considerable breadth, suggesting a fatty condition. The tissue, however, was not friable, and on section the firm consistence and glistening appearance proved that the condition was more cirrhotic than fatty.

Kidneys.—Slightly enlarged and unusually pale, but not fatty-

looking. On section both showed a thickening of the cortical substance, which was firm, of dull reddish-gray color, and homogeneous without any distinct striation. Malpighian bodies not apparent. The pyramids were coarsely striated and moderately congested at their bases.

Spleen.—Normal size and appearance, slightly injected.

Lungs.—Entirely normal, no fluid in pleural cavities.

Heart.—Normal, except that there was a slight hypertrophy of the left ventricle and some dilatation of the right.

Microscopic Examination. Liver.—Shows interstitial hepatitis in an early stage, with advanced fatty degeneration and some cell necrosis, which is not general.

Kidney.—Advanced cloudy swelling and granular degeneration of the tubulated epithelium with slight fatty changes.

Spleen.—Congested but not engorged; follicles normal; no increase of connective tissue.

Heart Muscle.—Normal.

Bouillon cultures were carefully prepared from blood of kidneys, liver, spleen, abdominal cavity, and heart. All remained sterile, not one showing a sign of growth after twenty-three days.

1449 RHODE ISLAND AVENUE.

CORRESPONDENCE.

PRELIMINARY NOTE ON AN OPERATION FOR SUSPENSION OF THE UTERUS.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—Under this title Dr. Robert T. Morris published in the March issue of THE AMERICAN JOURNAL OF OBSTETRICS the description of a procedure which, as he says, he published at that time “in order to fix the responsibility for the operation.” I suppose he means by this to claim priority for the procedure which he describes.

Although I do not regard the matter as of great importance, I have deemed it only just to call the attention of Dr. Morris and the profession to the fact that I employed the very method he describes in several cases during the year 1896, and abandoned it. The subject was presented by me at the meeting

of the American Gynecological Society held at Washington, May 4, 5, 6, 1897, and published in the Transactions of the Society for that year, and also in the *Medical News*, September 18, 1897, p. 362, in the following words:

"In some instances I have opened the sheath of the round ligament with an aneurism needle, lifted the ligament out of its bed, lapped it upon itself, stitched it in that position with two silk sutures, and allowed it to disappear again beneath the peritoneum. My object in this was to take up more slack in the ligament, thinking I could make it run in its sheath, as is done by pulling upon it in Alexander's operation; but in every instance I found the ligament so adherent to its bed that it had to be dissected out by slipping the aneurism needle, which had been hooked around it, back and forth, which procedure was attended by most annoying hemorrhage. I therefore have abandoned this step of the operation, etc."

The only step in which the procedure as employed by me differs essentially from that described by Dr. Morris lies in the fact that he approaches the round ligament through an abdominal incision, while I attack it through the anterior vaginal fornix.

Yours truly,

J. RIDDLE GOFFE, M.D.

22 EAST THIRTY-FIFTH STREET,
NEW YORK.

OPERATION FOR REPLACING AN INVERTED UTERUS.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—I wish to suggest a method of returning an inverted uterus which I have tried, but do not remember having seen recommended.

Several years ago I saw a woman who, two months after confinement, was found to have an inverted uterus. I first saw her about nine months after labor.

After packing the vagina for a day, I cut a strip about half an inch wide off a sheet of strong dental rubber. This I wrapped on the end of a strong pair of uterine dressing forceps (closed). Now, holding the uterus well down, I wrapped the rubber firmly from the fundus upward to the cervix. It was astonishing to see how the body of the uterus shrank. I found

that I could reinvert it without much trouble until the fundus was within the cervix. I did not succeed in completely reinverting it. Of course, as the body entered the cervix, the rubber band was unwound or pulled off from the cervix downward. When the fundus was completely within the cervix (now comes the new feature of the operation), I introduced a Gariel air bag, sewed the cervix firmly over this, and then inflated. The vagina was now packed. This was left *in situ* until next day.

I then found that the stitches had all torn out and the inversion had completely re-established itself. The parts now looked so dark and sloughy that I removed the uterus at the neck. I cut gradually through the neck, tying as I went. The patient recovered promptly and perfectly. The physician who preceded me in this case was sued for fifteen thousand dollars damages, so I could not report it at the time. The suit was decided in the doctor's favor.

Yours truly,

FRANK A. GLASGOW, M.D.,

*Professor of Clinical Gynecology in Medical Department of
Washington University, St. Louis; Gynecologist to St.
Louis Maternity Hospital.*

4056 WASHINGTON AVENUE, ST. LOUIS,

February 28, 1900.

LYMPHATIC PUERPERAL INFECTION.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—On page 387 of your March number, under the subject of "Lymphatic Puerperal Infection," I am reported as considering a certain case as one of "undoubted *sapremia*." On the contrary, my case was one of "mixed infection, the streptococcus predominating," and this fact justified the hysterectomy which I performed. I am, of course, opposed to major operation in case of *sapremia*.

Yours truly,

EGBERT H. GRANDIN.

36 EAST FIFTY-EIGHTH STREET, NEW YORK,

March 20, 1900.

TRANSACTIONS OF THE SECTION ON
GYNECOLOGY OF THE COLLEGE OF
PHYSICIANS OF PHILADELPHIA.

Stated Meeting, February 15, 1900.

The Chairman, JOHN B. SHOBER, M.D., presiding.

DR. H. D. BEYEA read a paper entitled

DERMOID CYSTOMA OF THE PELVIC CONNECTIVE TISSUE,
WITH REPORT OF A CASE.¹

DR. JOHN G. CLARK.—This paper should not be passed over without complimenting Dr. Beyea for the careful way in which he has worked out this subject. He is to be congratulated also upon the fact that he has recognized the third case of this kind reported in the United States and the twenty-second case occurring in medical literature.

In the study of this subject I have been struck with the fact that the dermoids of the pelvic connective tissue conform much more closely to the superficial dermoids of the other parts of the body, being made up largely of the epiblastic layer, whereas the tissues of the true ovarian dermoid are derived frequently from all three of the embryonic layers; thus, in the dermoid cyst of the ovary the rudimentary parts of practically every organ in the body have been found.

Krömer and Wilms have both recently carried out very careful investigations upon ovarian dermoids, and have each arrived at the conclusion that they originate from an atypical growth of a non-fertilized ovum, which accounts for the presence of all the embryonic tissues.

In Emmet's case of dermoid cyst of the pelvic connective tissue, published some years ago, some doubt may arise as to whether it was not ovarian in its origin; for, as reported by Sänger, it would appear that all of the ovary was not removed at the time of the operation, and it is therefore possible that it was derived from this source.

In Dr. Beyea's case no stone has been left unturned to prove that the tumor primarily originated in the connective tissue. The case is unquestionably a very interesting one, first because it is so very rare, and, second, because it brings up the question of the diagnosis and the etiology of these unique growths.

DR. JOHN G. CLARK reported

¹ See original article, p. 433.

TWO CASES OF EXTRAUTERINE PREGNANCY: (a) TUBO-OVARIAN
PREGNANCY FOLLOWING RELAPSING APPENDICITIS;
(b) RUPTURED TUBAL PREGNANCY WITH
SYMPTOMS OF INFECTION TREATED
BY VAGINAL PUNCTURE.¹

DR. JOHN B. DEAVER read a paper entitled

REMARKS UPON THE OPERATIVE TREATMENT OF UTERINE
PROLAPSE.²

DR. JOHN C. DA COSTA.—While agreeing with Dr. Deaver in a good many of his points, I do not entirely agree with him as to ventrofixation. Amputation of the cervix and then anterior and posterior colporrhaphy are the regular steps. When it comes to holding the uterus up, and the troubles in subsequent pregnancies, you will find that most of the troubles that have occurred have been in cases where ventrofixation has been done. Where ventrosuspension has been done you find no trouble. The ordinary rule for ventrofixation has been to attach the uterus by sutures running through its posterior wall, attaching it firmly to the abdominal wall, which stitches are kept in for from ten days to two weeks. When pregnancy occurs there has been trouble in almost all these cases. If, on the contrary, ventrosuspension is done and the sutures put, not in the posterior wall, but in the top of the uterus, I think it will be found no trouble follows.

Dr. Deaver speaks of going back to the scalpel to do either a posterior or anterior colporrhaphy. In 1881 I began to do submucous denudation of those parts. If a small pair of blunt-pointed scissors is used, making a little nick for the anterior colporrhaphy in the anterior wall and pushing the scissors ahead, one will be surprised to find how rapidly the work can be done. The same method is used in posterior colporrhaphy. You can in that way do a submucous denudation and do the whole operation in ten or fifteen minutes, and will be sure to leave no buttonholes in the tissue, which is not ordinarily the case in operations done with the scalpel.

In sewing up the anterior wall I do not use catgut sutures; I enter the stitch about an eighth of an inch from the edge of the cut, keeping it buried until it emerges an eighth of an inch from the edge on the other side, and thus bring the tissue together. Using silk, I do not run the risk of infected catgut. I had some unfortunate experiences with catgut, and have since gone back to the use of Chinese silk and silver wire.

DR. H. D. BEYEA.—I believe that one of the most important factors in the successful operative treatment of uterine prolapse is what I may call the preliminary preparation for operation. In the usual case, those in which the cervix has reached or passed the ostium vaginæ, there is present a secondary hypertrophy of the entire uterus, resulting from chronic

¹ See original article, p. 495.

² See original article, p. 478.

hyperemia and edema of the uterine tissues; supravaginal elongation and hypertrophy of the cervix, due to traction on the cervix by the prolapsed vaginal walls while the fundus of the uterus is prevented from further descent by the uterine ligaments and intra-abdominal pressure; hyperemia and hypertrophy of the vaginal cervix; and an over-stretching of the vaginal walls and vaginal outlet, hyperemia and sometimes edema. If a plastic operation is undertaken with these pathological conditions prominent, the operator is unable to accurately judge the amount of tissue to be denuded and included in the suturing to restore the destroyed and atrophied supports and shape of the vagina. Any preliminary treatment or procedure then which would reduce the amount of these secondary pathological conditions is, I think, of the greatest value in securing a successful result of plastic operations. Therefore it is my practice to first replace the uterus in the knee-chest position and keep it in place by having the patient remain in the recumbent position in bed for at least two or three weeks. Also, she assumes the knee-chest position for ten or fifteen minutes each day, is given a vaginal douche of a gallon or more of hot water two or three times daily, and the intestinal contents are kept soft by a saline laxative. As a result of this treatment the uterus reduces in size (a uterine canal that measures six or seven inches will be reduced to three or four inches), ulcerations of the cervix will heal and the hypertrophy diminish, and the vaginal walls and outlet will contract.

The method of operation I have practised for pronounced uterine prolapse is, with slight modifications, that taught me by Dr. Penrose, and aims to restore the supports of the vaginal outlet and vagina and secure involution or superinvolution of the uterus. This operation consists in, first, the amputation of the cervix; second, a modified Sims operation on the anterior vaginal wall; and, third, an operation on the posterior vaginal wall and perineum, in which the denudation resembles that of Hegar's operation. In performing Sims' operation the greatest amount of tissue possible is brought together in the median line, a wide area of denudation is made, the limbs of denudation communicate anteriorly near the urethra, and an additional small circular area of denudation is made posteriorly near the cervix in the median line. These denuded areas are brought together by silkworm-gut sutures introduced transversely beneath the denuded areas and through the muscular wall of the bladder. In performing the Hegar operation the levator ani muscle and fascia are caught deeply on each side by transverse silkworm-gut sutures and brought together in the median line, so that the greatest possible perineal support is attained. After the completion of the operation the vagina is found to scarcely admit the tip of the index finger, but a few weeks after the sutures are removed the vagina is only a little less than normal in size. It is of importance that the sutures remain in position for four weeks. This method of operation

has given me excellent results, and among about thirty cases there has been but one return of the prolapse. In this one case there was a very complete atrophy of the muscles of the pelvic floor, and it was realized at the time of operation that the prolapse would most probably return. The vaginal operation here should have been combined with ventrosuspension, or, better, hysterectomy with elevation of the stump. In one case the patient became pregnant a year after operation, went to term, and had a normal labor. There was a slight tear of the perineum, which I repaired with two or three sutures. Six months after labor the uterus was in good position. I would therefore conclude from my experience with this operation that it is only in extremely rare cases, where there is a very complete atrophy of the vaginal muscle supports, that it is necessary to do a ventrosuspension with plastic operations; that the vaginal operation should suffice to cure prolapse of the uterus.

DR. EDWARD P. DAVIS.—Dr. Deaver's paper suggests a discussion of the question as to what constitutes the essential element for the support of the pelvic contents. Some believe that the fascia of the pelvis is the important factor, while others lay especial stress upon the function of the levator ani muscle. It does not seem reasonable to suppose that muscular tissue only should be called upon to exercise a constant supporting action, and it is probably true that both tissues are necessary and of equal importance in securing the result.

Dr. Deaver laid special stress upon dissecting until he came to muscular tissue and then bringing this muscle accurately together. This subject has recently been treated in a paper by Harris, in which much the same ground covered by Dr. Deaver's paper is discussed.

DR. DEEVER (closes): In answer to Dr. Da Costa, I think that the ventrofixation should precede the perineal operation.

In regard to sutures, I agree that silk is sometimes difficult to take out when you have an incision anteriorly and posteriorly. Catgut has served me well. I believe I have experienced better results with the kumol catgut prepared after the manner of Dr. Clark than any other, from the standpoint of sterilization, but there are certain things I do not like about it: it is wiry, and before using rubber gloves it was apt to make indentations upon the fingers. The very fine gut I find a little brittle. On the whole, my success with the catgut has been quite satisfactory.

In the question of denudation, I dare say that the scissors answer every purpose. It is not often I buttonhole the flap, but can readily see, as Dr. Da Costa has said, how it can be done.

In regard to the operation used by Dr. Beyea in connection with the Sims operation, there is no question but that it answers in certain cases. I infer from Dr. Beyea's remarks that in a bad form of prolapse it would not suffice without ventrofixation. I have done these operations with success, and where patients would not submit to the abdominal operation I have introduced a pessary.

In the restoration of the pelvic floor, I aim to restore both the fascial and muscular structures.

I have read the paper referred to by Dr. Davis.

DR. JOHN B. SHOBER presented

A SPECIMEN OF EPITHELIOMA OF CERVIX UTERI REMOVED
BY VAGINAL HYSTERECTOMY.

This specimen is one of a uterus removed by vaginal hysterectomy from a woman 38 years of age for epithelioma of the cervix in a very early stage. Dr. Williams, who has made a pathological examination, tells me that it is in as early a stage as he has ever seen carcinoma in this region. The carcinomatous tissue seems to be confined in a definite and limited area. The woman was seen three years ago and had bilateral laceration of the cervix with hypertrophy and endocervicitis. I advised her to have the cervix repaired, and warned her of the danger of developing malignant disease. She refused operation. A few weeks ago she returned, when upon first examination I thought there was nothing more than erosion, and simply out of precaution, in view of a differential diagnosis, excised a small piece for examination, and the malignant process was found.

I regret that I did not in this case remove more of the vaginal tissue at the time of operation. Although I felt sure that I got outside of all of what appeared to be the area of disease, at the same time it would have been possible at the operation to have removed at least an inch or three-quarters of an inch more of the vagina.

I operated upon a similar case about three years ago, in whom, however, the disease was a little more extensive, involving part of the vaginal vault. I was able to remove fully an inch of vagina at the vaginal vault, and, as I thought, well outside the seat of disease. I have just heard that only three months after leaving the hospital there was a return of the carcinoma, and that six months after that she was dead.

This specimen is a small uterus, free from adhesions, without disease of ovaries or tubes. The seat of disease appears to be confined to a small area of the portio vaginalis. It turned out very easily from the anterior incision of the vaginal wall. It was only necessary to apply two clamps on each side of the broad ligament. The woman is making a very easy convalescence. There was no shock and the temperature was never above 100°. The pulse has been normal and there has been no more disturbance than with an operation upon the perineum or cervix.

Dr. Williams has brought a microscopic slide of the growth, which shows the typical structure of early epithelioma.

DR. JOHN B. DEEVER: This is a unique specimen from the fact that it is in the incipient stage. A question which I have not definitely settled is whether vaginal hysterectomy, even in the presence of incipient carcinoma, should be done. Further-

more, after doing vaginal hysterectomy, I have felt sorry I did not cut away more of the vagina. I believe we can offer a better safeguard against return by doing a combined operation: first dissecting off the vaginal membrane wide of the cervix, tying off the uterine arteries, and then going up and completing the operation through the abdomen.

While I have never made the attempt to dissect out the glands along the iliac vessels, except when enlarged, I think it should be done. Dr. Kelly, I understand, makes this his practice. This is the ideal way. I do not see why we should do pelvic surgery different from surgery of the other parts of the body. In removing epithelioma of the lip I open up the neck and remove the submaxillary lymphatic glands. As I have said, the question is not settled in my own mind whether we ought to do a vaginal hysterectomy, even where the case is in so early a stage as that of Dr. Shober.

DR. JOHN G. CLARK.—The question of the radical removal of cancer of the uterus is one which has interested me very greatly. In 1895 I carried into effect a plan for the more radical removal of cancer of the uterus, in which a large portion of the broad ligaments, along with the pelvic lymph glands, were extirpated. Since then I have performed eighteen of these operations, in many of which the iliac glands were removed.

The difficulties of this method have been urged as an objection against it. These objections are well taken, for I recognize the fact that it is both difficult and requires considerable time for its proper execution, and, unless it can be shown that distinctly better results are obtained for its employment, I am willing to give it up. Personally, I have no reason to discard this method because of its high mortality, for in eighteen operations I have so far had no fatal result.

I heartily concur with Dr. Deaver in his opinion as to the advisability of the abdominal operation. Instead of performing the combined operation, in which the vaginal part is done first, I reverse the order and first liberate the adnexa and dissect out the uterine vessels from above; having completed this part of the operation, which may be looked upon as the cleaner field, I should then, were it necessary, complete the operation from below.

In all of these operations the introduction of bougies into the ureters is a very great safeguard. In the operation which I have proposed, the most difficult step, according to my experience, has been the freeing of sufficient of the vaginal wall to insure the removal of the local disease. The only hope in these cases is to remove all of the tissue anatomically possible, and to this end I feel that it is highly essential to excise at least three-fourths of an inch of vaginal tissue outside of the carcinomatous area.

Dr. Werder, of Pittsburg, has offered what appears to me a very good modification of the abdominal operation, which I hope on the first opportunity to put into effect. To obviate the

usual difficulties of the removal of the vaginal tissue he offers the following plan: After liberating the broad ligaments from above, the uterus is pushed into the vagina, where it is caught by traction forceps and pulled down to the external outlet. Having done this, he is able with the cautery to excise a considerable cuff of vaginal tissue. He has now operated upon four or five cases, and in a personal conversation recently he expressed great confidence in the efficacy of this method.

As to the removal of the pelvic lymph glands, which has been advised by Rumpf, Reis, and myself, I feel that this procedure is perhaps of prognostic rather than of actual curative value. If these glands are thoroughly removed and on microscopic examination are found to be free of carcinomatous metastases, the prognosis is favorable if the local involvement has been thoroughly excised; if, on the other hand, these glands are found to be the seat of metastases, I look upon the prognosis as a gloomy one. With regard to the glandular metastases, carcinoma of the uterus is radically different from carcinoma of the breast. In the latter condition early involvement of the glands is the rule; in the former it is invariably late. The one essential, therefore, which I should emphasize above all others, is the extensive removal of vaginal tissue adjacent to the carcinoma of the cervix. To accomplish this I feel that the abdominal method has great advantages over any form of vaginal operation. In very fat women there is an exception to the rule, for the thick abdominal walls preclude the possibility of a thorough abdominal operation, and under these circumstances the vaginal method can be carried out as effectively and with less danger than the abdominal.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY.

Meeting of February 27, 1900.

The President, JOSEPH E. JANVRIN, M.D., in the Chair.

DR. GEORGE C. FREEBORN exhibited a number of specimens showing

PATHOLOGIC CHANGES IN FIBROMYOMATA OF THE UTERUS.

Fibromyomata of the uterus, when they reach any considerable size, are subject to several forms of pathologic changes. One of the most common is calcification, which may be partial or complete. Usually the change occurs in circumscribed areas; at times it forms a complete shell of greater or less

thickness around a part or the entire periphery of the tumor; and in some instances the whole tumor becomes involved. It occurs in all classes of these tumors, but is apparently more common in the subserous variety. The change is caused by the deposition of lime salts in the connective-tissue elements of the tumor, the muscular elements not being involved, especially in the early stages. An analysis of the calcific material shows its composition to be as follows: calcium carbonate, 40 per cent; calcium phosphate, 29 per cent; calcium sulphate, 13 per cent; organic matter, 0.4 per cent.

Calcification of the submucous and interstitial forms has given rise to the so-called "uterine calculi." The analysis given above was of one of these "uterine calculi."

Complete calcification of uterine fibromyomata causes a cessation of growth. Cases are on record where calcified subserous fibromyomata have become detached from the uterus and found free in the pelvic cavity.

Fatty degeneration was formerly believed to be a very common change in these tumors, but more careful microscopic examination of this supposed change seems to prove that it is not of common occurrence. The change, when it does occur, is found chiefly in the interstitial and submucous variety—the "soft fibroids," really myofibromata.

One case of amyloid degeneration has been recorded by Stratz.

Necrobiosis is a change brought about in these tumors by an impairment of their nutrition. As a result of this a slow death of the tumor occurs. Its tissue elements become macerated and soft. Its color changes to a reddish brown through the destruction of the red blood cells and the diffusion of their coloring matter. A general infection takes place, resembling that due to enclosed putrefying material. This change is comparatively rare and is found chiefly in the interstitial fibromyomata.

Myxomatous degeneration is probably the most common of all the pathologic changes occurring in this class of tumors. It is confined chiefly to the large interstitial and submucous varieties. This change may be confined to a single or several moderately circumscribed areas, but at times the entire tumor is involved. The parts affected become soft, the intercellular substance swells and becomes jelly-like. As the process extends the tumor becomes soft and in the early stages resembles edematous tissue, hence the term "edematous fibroid." In later stages of the process small cysts appear, which are filled with a clear, albuminous fluid; in later stages these cysts coalesce, forming larger ones; and in the latest stages the tumor may be converted into one or more large cysts, filled either with a clear fluid or a mixture of fluid and necrotic material, forming the "fibrocystic tumor."

Suppuration is a process due to infection of the tumor. This infection may be the result of a mechanical injury of the tumor; it may be conveyed from without through the genital

canal; or the infection may come from some of the hollow viscera—the bladder or intestine. In its early stages it is confined to the exposed portions of the tumor, but, as a rule, it advances rapidly and soon involves the entire new growth. In advanced stages, ulceration, necrosis, and gangrene occur, and a “sloughing fibroid” is the result. There are a number of cases on record of fibromyomata of the uterus becoming converted into pus sacs. From an analysis of these cases it appears that the vast majority of them were of tumors attached to the external surface of the uterus, and the question has been raised as to the correctness of the diagnosis, which was usually a macroscopic one. It has been suggested that many may have been suppurating cysts of the ovary. We have had one case submitted to us for examination where after careful study the conclusion was reached that it was a suppurating cyst of the ovary instead of an abscess of a uterine fibromyoma, as was diagnosed clinically.

Malignant changes are frequently reported as occurring in the class of tumors under consideration. Pathologically they cannot be considered as degenerations, as they are new growths. From careful study of carcinoma found in this class of tumors, it is now believed that they are ingrowths from a carcinoma of the uterus itself. It must be borne in mind, however, that it is possible for a carcinoma to arise in the tumor itself, as there is a class of tumor—adenomyoma—that occurs in the uterus, and which contains elements from which a carcinoma might originate.

Sarcoma being a tumor that takes its origin from the connective-tissue elements, there is no reason why it should not arise in the tumors, as it contains more or less of connective tissue. This form of new growth is apparently quite common, from the number of recorded cases. One authority has suggested that many of these reported cases may have been only inflammatory changes, as the microscopic appearances are so similar, especially in the early stages. From our personal experience we are in agreement with him.

DR. GEORGÉ T. HARRISON.—The demonstration which Dr. Freeborn has given us is a beautiful one. Of course he does not intend that we infer that the retrograde changes stop here. I should think that in some of the specimens shown extensive necrosis would have followed had the tumors not been removed.

DR. FREEBORN.—The pathological changes which I have demonstrated are progressive changes, which begin in a small area and gradually extend and involve other tissues. In some of the specimens the changes are confined to but one set of tissues. If the process had gone on, other tissues would have been involved.

DR. J. DOUGAL BISSELL.—I recently saw a case in which the tumor extended up to the liver and was thought to be a part of that organ. The specimen showed three different changes.

DR. JAMES N. WEST.—We are in the habit of speaking of malignant degeneration of fibromata, and are apt to refer to this as a reason why a patient should submit to operation. Fibroid tumors must be composed of tissue in which malignant changes frequently occur. I have seen many such cases. About eight months ago a patient presented herself at the clinic. A mass could be felt in the pelvis, and I made a diagnosis of fibroid. Operation was advised but refused. Recently she returned and I opened the abdomen. It was then too late to save the patient, for everything was involved. The tumor was a subperitoneal one, situated on the fundus of the uterus, and the carcinomatous changes which had taken place extended to all the pelvic organs.

DR. FREEBORN.—I take exception to the term “malignant degeneration.” Such a thing does not exist. “Malignant change” is the proper term. Carcinoma is a new growth and not a degeneration. The case referred to by Dr. West was in all probability one of adenomyomata, a condition to which Von Recklinghausen called attention three years ago. There is no gland tissue in fibroids. Carcinoma always grows from epithelial structure. It cannot develop from fibrous tissue. From the literature and from my personal experience I find that in most of the cases of so called “malignant degeneration” in submucous and interstitial fibromyomata the changes are due to an ingrowth, except, perhaps, in the soft variety, the adenomyomata (?), which is found in the horn of the uterus and is rare. This form, extensively described by Von Recklinghausen, has excited much interest in Germany and, more recently, in France. Here there are epithelial elements and carcinoma may develop, but not otherwise. In most cases the condition is an ingrowth from a pre-existing carcinoma on the outside of the tumor. These tumors contain an element which develops into carcinoma—*i.e.*, epithelium.

DR. BISSELL.—Did you find necrotic changes in any of the specimens?

DR. FREEBORN.—Yes, in several. Most of the specimens present the early stages of the malignant change. I often find necrotic material in these tumors, but not all necrotic tissue is septic. When such a condition exists, however, the tumor may be readily infected by bacteria from the intestines, and then trouble will follow. It is now believed that the pathogenic germs contained in suppurative cysts may travel through the lymphatics. The bacillus coli communis has been found in pus tubes and in the uterine cavity. The typhoid bacillus has also been found in the uterus. These germs travel very readily, but in a manner which is not generally understood, although it is supposed to be through the lymphatics.

DR. JANVRIN.—When a malignant growth develops in one part of the uterus and finally invades the fibroid, as you say it does, what is the actual change which takes place in the fibroid?

DR. FREEBORN.—The normal tissue of the fibromyomata

gradually becomes invaded and destroyed by the carcinoma, as is the case in any other part of the body. Histologically, carcinomatous tissue replaces the normal tissue. It is not necessarily a process of long duration.

DR. JANVRIN.—The reason I asked this question is because I have frequently performed vaginal hysterectomy in cases in which a small fibroid of the uterus existed and in which the cervix was the seat of carcinoma, which had begun to spread into the parametrium and finally had invaded the fibroid.

DR. FREEBORN.—Fibromyomata are rather resistant to carcinoma. They are of slow growth and do not contain epithelial tissue; therefore carcinomatous changes do not grow into them readily. On the other hand, the uterus contains epithelial tissue, and proliferation of cells takes place much more rapidly and carcinoma is easily developed.

DR. JANVRIN.—We often find epithelioma in close contact with fibrous growths, yet the latter have not become infected.

DR. FREEBORN.—Years ago it was said that epithelioma and fibroid never coexist in the same patient. Some years ago I exhibited a specimen showing that the two conditions could and did exist. It is now known that this is not infrequently the case.

In regard to Dr. West's case, I would say that I hope soon to present a specimen illustrating the condition to which he refers, viz., in which the intestines and all the pelvic organs are involved in the carcinomatous growth. There is, however, a class of cases, called pseudomyxomata, in which the tumor contains a jelly-like material which resembles very much that found in cyst-adenoma of the ovary.

DR. GEORGE T. HARRISON showed a specimen of

MYOMA REMOVED BY KOLPOMYOMECTOMY.

This specimen, a myoma, was removed from the uterus of a woman on May 16 last. Briefly, the history is as follows: The patient is 39 or 40 years of age and has always enjoyed good health until about two years ago, when she noticed that her menstrual flow was too profuse. Of late the loss of blood has been so great that her fears were aroused lest she should bleed to death. She failed to seek medical advice because of a disinclination to undergo an examination. When she came into my hands bimanual palpation revealed the existence of a large myoma which was probably submucous. I was forced to resort to the use of vaginal tampons of iodoform at first, as a temporary recourse. As soon as I was able to control the hemorrhage, I proposed, as a palliative measure, dilatation of the cervix, curettage and packing of the uterine cavity with iodoform gauze. This method proved efficacious in relieving the patient from excessive loss of blood. As an additional therapeutic aid I exhibited five grains of thyroid extract three times a day. The case progressed favorably until May last,

when the patient sent for me to relieve her of urinary retention, as she was utterly unable to void even the slightest amount of urine. In endeavoring to ascertain the cause of this symptom, which had come on suddenly, I found that the os uteri was dilated and the myoma was presenting. I advised operation, and on May 16, in the presence of Dr. S. B. Morrison, of Virginia, I placed the patient on a table, had ether given, and proceeded to operate by kolpomyomectomy. As the patient was a virgin, I was obliged to enlarge the vaginal outlet by making two lateral incisions in the posterior vaginal wall and perineum. I then cut through the enveloping capsule and enucleated the tumor, while powerful efforts at traction were simultaneously made by my assistant. The fundus was inverted and there was danger of taking off part of the uterine wall. By exercising care this was avoided and the tumor delivered. The greater part of the enveloping capsule was ablated, the uterus reinverted, and its cavity packed with iodoform gauze. The patient made a perfect recovery. In the performance of the operation I was ably assisted by Drs. Noll and G. Harrison.

The importance of the case is that it shows that a great many such cases can be operated upon by kolpomyomectomy instead of abdominal hysterectomy, and the patient thus spared the dangers which attend the latter operation. By stimulation many interstitial growths can be made to enter the uterine cavity, thus becoming submucous, and can then be easily approached and removed through the cervical canal. This was beautifully illustrated in a case which came under my observation a number of years ago. The woman had an intrauterine growth, and I proceeded to dilate the cervix with sponge tents, as was then the custom. I then passed my finger into the uterine cavity and found that the tumor was interstitial, and decided to employ Emmet's method of traction, viz., seizing the tumor and making traction upon it in order to form a pedicle. In this I failed. A month later I again dilated the cervix and repeated the procedure, with the result that I converted an interstitial growth into a submucous growth and was able to remove it through the cervix. This method is much better than abdominal extirpation.

DR. FREEBORN.—I have never heard of instances in which large fibromyomata have been expelled per vaginam, but I have known an intrauterine tumor to be expelled from the uterus after the latter had been removed from the body. On one occasion I made a section of a uterus containing a tumor and left it for a few minutes to attend to something else. When I returned I found that the muscles of the uterus had contracted and expelled the tumor. I have also seen this happen when a uterus containing an interstitial fibroid was incised over the tumor.

DR. MALLET.—I once saw a case somewhat similar to that reported by Dr. Harrison. My case was also given thyroid extract, but it did not act well. I now substitute the mammary

extract in these cases, for it does not produce any unpleasant symptoms.

During my Woman's Hospital experience I remember seeing Dr. Harrison treat a case of intrauterine tumor by dilatation and packing of the uterus with iodoform gauze. I would now prefer to remove such a tumor by abdominal myomectomy rather than subject the patient to the months of treatment incident to repeated dilatation and packing of the uterine cavity.

DR. HARRISON.—The great advantage of vaginal myomectomy lies in its safety. In the case I have just reported the woman did not have a rise of temperature of more than half a degree after the operation, nor did she have an ache or a pain. Soon after I opened the abdomen of another patient for the purpose of removing a tumor by laparotomy, and she died four days later.

DR. J. DOUGAL BISSELL then read several;

NOTES ON OBSTETRICAL CASES.

Each case has certain features of interest and may serve in its study to throw some light upon similar cases which have occurred in the practice of others.

CASE I. *Oligohydramnios associated with Diseased Adnexa*.—Miss F., age 24, unmarried, applied to me for advice in July, 1893. On examination the uterus was found enlarged, and on the right side a mass was discovered, which, having associated with it pain, slight elevation of temperature, and profuse leucorrhea, was diagnosed as pyosalpinx. On the right side the adnexum seemed thickened and adherent. The patient had not menstruated in eight weeks, and, suspecting pregnancy, I instituted no active treatment, but advised her to remain under observation. I did not see her again until three months later, when, hastily summoned to her apartment, I found her in severe pain. Digital examination revealed a pregnant uterus; cervix was soft and dilated; temperature 103° . As she presented all symptoms of active miscarriage, I prescribed quinine and antifebrin to stimulate uterine action and to reduce temperature. Upon my return a few hours later, fetus had been born, the placenta, fetus, and sac coming away as one. There was no liquor amnii present, and the sac fitted closely over every feature of the child. I saw no evidence of life in the fetus, and, on questioning those present, it was evident there had been none. On the third day after the miscarriage the lochia suddenly ceased, the pain increased on right side, and temperature rose to 103° , subsiding after several days of frequent intrauterine douching. Profuse and painful menstruation followed the miscarriage for three months successively, at the end of which time I opened her abdomen and removed from the left side a pus tube and hematoma of the ovary, and from the right side a firmly embedded ovary with a thickened, adherent, and occluded tube.

The conception must necessarily have taken place from the right side, as that ovary alone possessed healthy tissue, the left being completely destroyed by hemorrhage within its structure and the tube occluded with pus. The tube of the right side was diseased when removed, but the condition found at operation could hardly have existed prior to conception, and as she stated that she had been sick and under another physician's care during the latter part of her pregnancy, it is probable that her condition was then acute pelvic inflammation. With regard to the envelope of the fetus, the question arises, What influence, if any, had the pelvic disease upon its development? The pelvic condition was undoubtedly a factor in causing the miscarriage, but could it also have been a direct or indirect cause of oligohydramnios?

CASE II. *Complete Procidentia of a Five-Months Pregnant Uterus.*—This case is one of complete procidentia of a five-months pregnant uterus. When called in consultation by the patient's physician, Dr. Cutujian, I found the uterus as far out of the pelvis as the surrounding structure would permit. The cervix uteri projected several inches through the vulva; its diameter measured three and a half inches, and its length to the internal os the same. The external os was sufficiently open to admit the passage of two fingers, but the internal os was contracted. I attempted the reduction of the uterus without administering an anesthetic, but was compelled to desist because of occasioning severe pain about the perineum. When chloroform was administered and the uterus reduced, it was discovered that the mucous surface about the posterior commissure and the vaginal wall, to the extent of about a square inch, had by extreme pressure of the engorged cervix undergone more or less strangulation and was the cause of the acute pain. It was quite plain from this condition, as well as from the statement of the patient, that there had been a constant pressure upon these parts for many hours. After returning the uterus to its normal position, I found more difficulty in entering the cavity than I had anticipated; for by the replacement of the organ the body was necessarily carried further from me, offering an additional hindrance to those already existing, and rendering the necessary manipulation in emptying the uterus almost impossible. I then forcibly prolapsed the uterus and proceeded to empty its cavity with more ease. The internal os was found very rigid, and a forcible dilatation with Goodell's dilator was necessary. With the tip of one finger in the cavity I was able to secure a foot which conveniently came within reach, and by this means I was soon able to extract the body, but the rigidity of the os prevented the passage of the head. Finding that the os would not yield easily, and knowing that the life of the fetus was not to be considered, I used sufficient force to separate the body from the head in order to facilitate a quick delivery. When the head of a fetus of this size is left in the uterine cavity it will, under ordinary circumstances, be found more or less difficult to extract with

the small, smooth forceps in common use, for, being a round body and having no fixed point, it moves away from its grasp. I have found, in the several cases that have come under my care, that one of Jacobs' small traction forceps is most advantageous for this purpose, but as it has sharp points it should be used with great caution. The points should follow the tip of the finger to the head, the finger constantly directing and guarding the points so as to prevent the possibility of an accident to the uterine wall. The blades are then opened only wide enough to grasp the head; the sharp spikes prevent the slipping away of the head, and, penetrating the bones, the brain cavity is soon emptied, thus allowing an easy and rapid delivery. The traction forceps being comparatively small, it occupies but little room in the cervical canal and uterine cavity, and for that reason can be most easily directed. It is, however, a dangerous instrument if the sharp points are not constantly protected by the tip of the directing finger until the head is grasped.

CASE III. *Complete Degeneration of an Amniotic Sac.*—The next case to which I invite your attention belongs to a class I believe to be extremely rare. I am obliged to relate it from memory, as my notes upon it, unfortunately, are lost. The essential features of the case, however, I vividly recall.

In June, 1898, I was hastily summoned to a patient who had been threatened for several days with a miscarriage. When I arrived at her bedside I found the fetus and placenta born. The fetus was well developed and measured twelve inches. This immediately attracted my attention, as not being in accord with the history of pregnancy given by the mother, which was as follows :

Six months previous to this confinement symptoms of pregnancy developed, and between the fourth and the sixth weeks nausea was so persistent and alarming that, by the advice of an eminent gynecologist in an adjoining city, her uterus was opened, curetted, and packed with gauze. After this treatment nausea soon ceased and she left the sanitarium within a few weeks. Menstruation not returning the next month, she considered herself again pregnant, and, when she came under my care, dated her conception from the time she returned to her home. The size of the fetus being twelve inches tells a different story, and the condition of the afterbirth gives us a probable explanation. The placenta itself seemed healthy, but there was no trace of the sac except about the margin of the placenta, where its remnants were observed, and from the uterus there was discharged a considerable quantity of broken-down material. With the assistance of Dr. Broun I immediately scraped away a quantity of this degenerated tissue, which I took to be the remains of what was once the amniotic sac.

The interest in this case centres in the fact that although the uterus was curetted and packed with gauze, yet the fetus was not expelled until the end of six months. The operation

relieved the persistent nausea, but evidently occasioned a diseased condition of the membranes, which must necessarily have existed in a greater or less degree for four months without interfering materially with the development of the fetus. In curetting the uterus I passed the curette its entire length up into the left horn, which makes it probable to my mind that the fetus developed in close proximity to, if not partly within, the tube, thus escaping, but with injury, the attempted interference may sink.

CASE IV. *An Unnecessary Cesarean Section upon a Patient with Normal Pelvic Measurements; Subsequent Labor with Birth of Child through Pelvic Canal.*—The following case is related only to illustrate how the patient is often at the complete mercy of the physician, how bold the ignorant can be, and how low morally a professional adviser may sink.

Mrs. H., age 24, applied to me for advice three years ago, suffering from indefinite pains through the pelvis. On examination I found a thickening about left side, a somewhat sensitive coccyx, and a broad scar reaching from the symphysis pubis to within a short distance of the ensiform cartilage. She stated that Cesarean section had been performed upon her two years before, the physician giving as a reason that the pelvic canal was too small to admit of the passage of the child. I failed to find any abnormality of the pelvis excepting about the coccyx, which was slightly sensitive to pressure and inclined forward a little. It was movable, however, and did not diminish materially the antero-posterior diameter of the outlet. She further stated that she had been advised by the operator to have her uterus removed, as it was his opinion that another pregnancy would certainly kill her. Several months after this consultation she again sought my advice, when I found her pregnant and advised non-interference. She was seen by Dr. Cleveland also, who concurred in my advice.

On November 23, 1898, I was called at 1 P.M. to attend her in labor. Pains at that time were quite strong; head rested R. O. A. and progress for a time seemed good. Finding after several hours that the head was not descending satisfactorily and that the uterine pains were diminishing, I ruptured the bag. This seemed to stimulate uterine contraction but little, so I applied forceps. The child, which was found to weigh within a fraction of eight pounds, was delivered with comparative ease; the perineum was lacerated, but immediately repaired, and the recovery of both mother and child was uninterrupted.

From the account the woman and her husband gave it would seem that the physician did not even make an effort to deliver with forceps. He informed them, several months before the child was expected, that the malformation of the coccyx so obstructed the pelvic outlet that it could not be born through the genital canal, and Cesarean section would have to be performed. The long-looked-for opportunity of his life had

arrived, as he is said to have afterward expressed himself, and he took advantage of the once injured but now unoffending coccyx to gratify his ambition. We must conclude that the operation was advised through ignorance or prompted by selfish motives. What a pity that the moral as well as the intellectual side of a student's nature could not be trained, examined, and passed upon! How necessary it seems to emphasize the teaching that surgery does not consist alone in knowing how to handle the knife, but in knowing both how and when; that an operation should never be done that can be avoided; that when there is a selection of two methods of procedure, never should the graver be chosen where there is a probability of the less grave giving the desired relief! No language can be too strong in condemning one who operates with other motive than the sole purpose of benefit to the patient; who would jeopardize the patient's life for selfish gain in money or reputation. Such a one stands in the eye of the moral law a criminal.

DR. HARRISON.—I would like to ask Dr. Bissell why, in one of the cases reported, he went up into the uterus with forceps after the fetus instead of allowing the uterus to empty itself. It is almost impossible to get hold of such a small head in the uterus, for it almost invariably slips out of reach. I admit that he overcame the difficulty very cleverly, but the question I raise is one of principle.

DR. J. DOUGAL BISSELL.—In reply to Dr. Harrison's question regarding my reason for emptying the uterus, I would say that the patient had been suffering from prolapse of the uterus for more than two years and that this was her second conception during that time. The first one was carried only three months, although every effort was made to prevent miscarriage. She was kept in bed, tamponed, and the uterus was supported by pessaries, but the uterus invariably prolapsed. During the pregnancy which is considered in the paper she was also treated systematically as before. The fetus was carried a little longer, but the same discouragements were met with, until at last the uterus remained down so long that a temperature ranging between 102° and 103° F. was reached. This, with the condition existing about the perineum, made us fear that gangrene would soon set in. In the face of such symptoms, and in view of the fact that all previous efforts to keep the uterus up had failed during both pregnancies, we thought it best to empty the uterus promptly.

The patient's subsequent history is also interesting. She became pregnant eight months later, was treated, as before, with supports, rest in bed, etc., but miscarried at the third month.

DR. HARRISON.—I once had a sad experience of this kind. I was present at an operation upon the sister-in-law of the operator. The patient had recently been curetted and was considered not to be pregnant. In fact, it was thought that pregnancy could be absolutely excluded. There was a tumor in the

pelvis, for the removal of which the abdomen was opened. As soon as I saw the uterus I at once saw that it was a pregnant uterus and whispered to the operator that he had better close the abdominal incision. He proceeded, however, in his manipulation, and the uterus was found to contain a five-months fetus. The patient died three or four days later.

DR. L. GRANT BALDWIN.—I have had no experience with cases so far advanced as that reported by Dr. Bissell, but I have seen several cases in which pregnancy continued after curettement. This occurs quite frequently and is due to the mistake which is made in trying to remove the products of conception with the curette. In these cases the curette is the worst possible instrument to use, for it simply slips over the uterine wall or the membranes and misses the fruit sac. A Keith forceps is a much safer as well as more competent instrument.

DR. MALLETT.—These cases are very interesting, and I venture to say that there is not a man present here this evening who has not met similar ones. I know of one instance in which a celebrated gynecologist curetted the uterus very thoroughly (as he thought), and a few days later the patient gave birth to twins of three or four months' development.

DR. JANVRIN.—I would like to ask Dr. Bissell why he found it impossible to keep the uterus up in the case of procidentia. If such was the case I should think it one in which total ablation would be justifiable at a subsequent date.

DR. WEST.—In the case under discussion I think that perhaps the case might have been carried on to full term if the woman had been put to bed and given hot douches. I have seen a case in which this was done with a successful result.

DR. BISSELL.—The condition of the patient was such that there was nothing to be done but to empty the uterus. The patient had had three miscarriages since the development of the procidentia. I always try to save a child when it is possible to do so, but in this case the condition cannot be appreciated by one who did not see the condition.

DR. CLARENCE R. HYDE.—I recently had a case under my care almost similar to the one reported by Dr. Bissell. The woman had a complete procidentia and in addition was seven months pregnant. The cervix was large, edematous, and protruded from the vulva, and by its pressure upon the fourchette had caused ulceration at that point. She informed me that the procidentia was present prior to her last confinement and that she had then worn a pessary. Acting on this suggestion, I inserted a pessary, which gave excellent support. A month later she again presented herself. The procidentia had not recurred and she expressed herself as being entirely comfortable. Examination showed nothing abnormal. I am unable to say whether or not she went to full term, as I never saw her after that.

Official Transactions.

CLARENCE REGINALD HYDE,
Secretary.

TRANSACTIONS OF THE NEW YORK
OBSTETRICAL SOCIETY.

Meeting of March 13, 1900.

The President, CLEMENT CLEVELAND, M.D., in the Chair.

PERITONITIS FROM RUPTURED OVARIAN CYST; FORCIBLE
DISTENSION OF THE INTESTINES WITH GAS TO
RELIEVE OBSTRUCTION.

DR. CLEMENT CLEVELAND.—When the woman from whom this specimen was removed entered the Woman's Hospital her temperature was 101°, pulse above 100, respiration rapid, and she had an immensely distended, sensitive abdomen. These symptoms had followed a fall on the sidewalk. Under anesthesia I was able to find a tumor, reaching nearly to the umbilicus, which I took to be a tense ovarian cyst or myofibroma. On opening the abdomen I found a tense multilocular cyst, one of whose cavities had ruptured. I removed the tumor without difficulty, using Skene's electric clamp. As there was peritonitis, I incised the posterior cul-de-sac and drained with gauze. From the beginning she did badly. The next day I determined, although so short a time had elapsed since the operation, to move the bowels. I gave her calomel, which she vomited; salts she vomited; high enemata could get no fecal movement and no gas. Then I waited to see what Nature would do; but she passed no gas, had no relief, and continued to vomit. Forty-eight hours after operation things looked very desperate, and I determined to distend the lower bowel, supposing the ileus might not be entirely due to paralysis of the intestine, but that there might be some obstruction which could be overcome in that way. I asked my assistant, Dr. Broome, to go to the hospital and distend the bowel with oxygen, my idea being that by distending the collapsed portion up to the point where the constriction occurred, it might relieve the twist or obstruction. He did so, the distension of the bowel causing pain and faintness, but she recovered, passed a great deal of gas, and became quite flat. She was given a high enema of turpentine and soapsuds and had a good fecal movement. The vomiting stopped immediately after she began to expel gas. The urine in the beginning showed traces of albumin, but no casts. Now there is much albumin with casts. She has been in a semi-coma for forty-eight hours, and this is becoming profound. I feel she will not live. My reason for bringing up the case is to speak of the method of distending the lower collapsed bowel in the

hope of relieving the point of obstruction. Oxygen was used simply because it was convenient.

DR. BROTHERS said he had used gas from a siphon of seltzer water.

DR. CLEVELAND.—I have used that method in relieving an intussusception, turning the siphon upside down and only using the gas.

DR. PRYOR showed a new

CYSTOSCOPE,

a modification of Chetwood's instrument.

In using his instrument I found that the light was thrown back from the sides of the tube, and, furthermore, in many applications to the bladder, that the light and its carrier took up too much space and interfered with manœuvres.

The handle is changed so as to reduce to a minimum the possibility of wetting the wires and the formation of a short circuit. The light is hidden and is thrown only upon the field to be inspected.

The lumen of the tube is entirely free for the passage of instruments or for inspection. The light is always where it is wanted, and the operator is entirely free from all the embarrassments incident to the manipulation of mirrors and focusing of lenses.

The instruments can be sterilized by boiling the tube and by bathing the lamp and carrier with carbolic solution.

The heat from the lamp will not burn the tissues.

I have no difficulty in using it in my office without anesthesia, but prefer to employ the instrument while the patient is under ether and in the Trendelenburg position.

I use the instrument as follows: With the patient on the back in a lithotomy position, I introduce the tube without the lamp, and, using this as a catheter, I empty the bladder; the table is then lowered into the Trendelenburg position and the lamp introduced in its proper place, in a comparatively dry field. The only caution that I have to express in using the instrument is against bearing hard upon the mucous membrane while moving the instrument from side to side. But this precaution is, of course, necessary in using any sort of tubular cystoscope.

The instrument is exceedingly simple, and the light is furnished by a cell, which is readily renewed and at a very trivial cost. The instrument will be valuable to those who have to demonstrate to a class the features of normal and diseased bladders.

The paper of the evening was then read by DR. ABRAM BROTHERS on

SOME POINTS IN THE DIAGNOSIS AND MANAGEMENT OF CYSTITIS IN THE FEMALE.

The author referred to the symptomatology of the disease in

its acute and chronic forms, and emphasized the fact that with the modern means of exact diagnosis of vesical conditions obscure lesions were no longer a mystery. "Irritable bladder" is now a myth. The author has been working chiefly with the Nitze cystoscope, and believes it to have advantages over the Kelly instrument in that the bladder is directly illuminated and a larger area can be seen in each field. The position of the patient, too, is easy, and no preliminary dilatation or anesthesia is necessary. Further, the interior of the bladder is distended by a fixed quantity of an antiseptic, transparent medium (boracic acid solution). The author then related the various visible changes in the bladder in disease and accepted Casper's classification: (1) change in color and lustre; (2) increased capillary circulation; (3) swelling; (4) changed secretion. The inspection of the bladder is positively contraindicated in acute inflammations, but is allowed in all forms of subacute and chronic inflammations. Dr. Brothers narrated in detail the treatment of the various forms of vesical inflammation, insisting upon as early an examination of the bladder cavity as is permissible for the establishment of the exact diagnosis. He then showed the Nitze instrument, comparing it, as he exhibited it, with the instruments devised by Kelly. He claimed simplicity and greater ease of manipulation for the Nitze cystoscope.

DR. SKENE.—I am pleased to hear Dr. Brothers take the ground that instrumental investigation is very seldom necessary in order to make a diagnosis of cystitis. I am quite confident that if one will adopt the plan recommended by Dr. Brothers, of excluding all other conditions which produce similar symptoms to those that obtain in cystitis, a diagnosis can be made not only in acute but in chronic cystitis; and while I entirely agree with the doctor and have adopted the same views in teaching for a number of years with reference to acute cystitis, I would also say that there is the same danger of doing damage and increasing the trouble in chronic cystitis. If one will exclude all the urethral troubles that can be excluded by inspection, such as caruncle, and inflammation of the lower half or third of the ureter, all diseases above the vulva, all dilatation, all adhesions, and so on, the difficulty can be localized with a great degree of certainty. It is a curious fact that a very slight displacement of the bladder will cause frequent urination, with some pain, in an erect position, whereas complete prolapse will cause no such symptoms. This is paralleled by the fact that in a slight downward dislocation of the stomach there is pain in the stomachic region, whereas in marked displacement there is less. The same thing occurs in abdominal dislocation of the kidney: a slight dislocation gives more disturbance generally than one that can wander all over the abdominal cavity. The explanation is in the fact that the supports of those organs resist as long as they can; when they are stretched beyond all power of resistance on their part, they give up and there is no longer any pain. It is

always a great advantage to exclude all those conditions which set up symptoms similar to cystitis, and they can be excluded without any cystoscopic examination. When the conditions or degrees of cystitis present cannot be diagnosticated in that way, they can very clearly and definitely be made out by examination of the urine in the vast majority of cases. I know of no diseases where doubt remains, except in secondary pericystitides, in some forms of ulcer and some neoplasms, where to determine the exact pathology an examination of the bladder is necessary. It is not necessary in calculus; the bimanual touch will reveal the presence of calculi of any size worthy of notice, when they cannot be passed. Without dwelling on the subject at any greater length, I am quite confident that not only can cystitis be diagnosticated, but various forms of cystitis may be made out, by ordinary methods of exclusion, the urine analysis, and the ordinary history of cystitis as we obtain it from the patient. I am quite positive about that.

With reference to the reason why we should take all this trouble to avoid the use of the instrument: I have never seen a case, where an examination of the bladder was made in cystitis, that the trouble was not aggravated, even by the most careful experts; and while I read and hear a great deal about the use of the cystoscope and the endoscope as being entirely free from causing any difficulty whatsoever, I myself confess in my own experience I have been as careful as possible, but I have had trouble. I have had the advantage of seeing cases from experts where they have had trouble that occurred long enough ago for them to see the bad results. It is an exceedingly important point not only for the general practitioner but for the expert. Sir Henry Thompson many years ago said that the introduction of any instrument into the bladder was an outrage which should be avoided as far as possible.

The Kelly instrument is only Kelly's in so far as it is made of metal instead of hard rubber. It has not one advantage as Kelly's that it did not have as Robert Newman's. He used the endoscope and gave beautiful illustrations of what he saw twenty-five or thirty years ago. I feel we ought to give one-third of the credit to the inventor of the endoscope, one-third to Newman, and the remaining third to Dr. Kelly. The great thing he introduced was the use of the Trendelenburg position; that is enough to immortalize any man. The great advantage in the use of the endoscope is in cases where we have to examine the ureter, not the bladder. It requires expert facility to pass the catheter into ureters through the endoscope.

In the use of the cystoscope, I find that examination has been very much facilitated by using a straight one. I had one made some time ago. It is not quite so easy to introduce, but when as straight as the old-fashioned female catheter—that slight curve is all that is necessary—it can be introduced with the greatest ease, and then it is a perfect instrument. Turbidity caused by bleeding can be overcome by washing the bladder with acetic acid. With a catheter attached to the

straight cystoscope I find I can use ureteral catheters with as much facility, with more than with the Kelly instrument; possibly that is because I have had more practice with the cystoscope than with the endoscope.

Dr. Brothers spoke about distending the bladder with the piston syringe. It is most dangerous to use it. It may not be in his hands, but in the hands of the ordinary practitioner it is exceedingly dangerous. The bladder is an organ which dilates very slowly, and it resents any effort to dilate it quickly. Most syringes jerk, but the old-fashioned fountain syringe has an arrangement by which you can regulate the flow, and it is safer—you are sure you are not introducing any air; with the piston syringe you do not know but you may. I wish to say here a word about the introduction of air. Nothing short of caustic will give as much distress as air.

There is much talk about the introduction of bacteria and germs of disease into the bladder. The fact is that the inflammation is caused by the introduction of bacteria once where a thousand times it is due to the injury we do. If there be an ulcerated surface, I do not see that one could do much harm by adding a few more germs to a surface already swarming with them. If the mucosa be all right the germs will do no harm. I have never found the slightest difficulty in keeping the cystoscope clean. I have used it a great many years, and I am sure I never did any harm by introducing bacteria in that way. For topical applications the endoscope is the best, but it is not by any means the best for removing neoplasms. The eroded base will continue to bleed or it will break down and urinary salts will be deposited on it.

It is not advisable to catheterize the ureters unless you have disease of the pelvis of the kidney or ureter. For diagnostic purposes Harris' instrument is efficient and safe.

DR. JOSEPH BRETTAUER.—I appreciate Dr. Skene's remarks, especially the advice not to catheterize the ureters. It is seldom necessary and is dangerous. I have had one very unpleasant experience. A young woman, whose urine contained a small amount of pus, white blood cells, and small casts, complained of pain on the right side in the region of the kidney, and was running a temperature of 100° to $100\frac{1}{2}^{\circ}$. She was a member of a family in which tuberculosis was not a rare occurrence, and the idea of its being a tubercular kidney came at once to me. With the utmost care the ureteral catheter was introduced. A specimen of urine from each kidney was taken and examined; one contained some pus, the other was clear; no tubercle bacilli were found. The patient, however, who up to that time was not even an invalid, started in with a chill and a temperature of 105° lasting three weeks. Finally the kidney was removed. It proved to be tubercular, but at the same time it was infected—it was infected at the time of the introduction of the catheter into the ureter. The bladder was carefully washed out before the introduction was made,

every instrument used was clean, but the patient within twenty-four hours showed infection.

DR. CRAGIN.—Before the remarks of the Society go before the public, I am anxious that Dr. Skene's position should be understood with reference to carrying infection into the bladder. I feel sure he would not want to say that there would be no danger of carrying infection by the catheter into the bladder. I think there is a little misunderstanding, unless I did not hear aright. I feel sure all those who have to do with diseases of women have to recognize the danger of a dirty catheter or the carrying of the germs, etc., from the vulva. I understood that Dr. Skene did not fear carrying infection into the bladder—simply feared injury to the bladder.

DR. SKENE.—I do not fear carrying in of germs half so much as traumatism. I am just as much afraid of introducing infection into the bladder as into the peritoneum.

DR. HARRISON.—I am glad to hear Dr. Skene pay the tribute he did to Dr. Newman, who was the earliest worker in the field. Dr. Newman was very fond of using nitrate of silver. He used a very large percentage—forty to sixty per cent. As a means of diagnosis in one case, at least, the endoscope left us in the lurch. Dr. Newman had been treating a case of chronic cystitis with the endoscope—Dr. Emmet had turned over all his bladder cases to him—but one case Dr. Emmet saw, and on making an examination he said, "The woman has stone in the bladder," and proceeded to open it. With the endoscope Dr. Newman had failed to observe this. With the method at our hand the same mistake might be made also with the Nitze method. You would not make the mistake with the Kelly method. As a means of differential diagnosis it is a great advantage and helps with some cases that would be in the dark without it. We could not make a differential diagnosis very often without it. It is fortunate that it is not necessary to use the cystoscope in treating most chronic cases of cystitis. Sir Henry Thompson taught that in these cases of cystitis, the chronic cases, we must introduce a very small amount of fluid in irrigating the bladder—four ounces as the greatest amount. Newman showed that the proper way was to dilate the bladder, if you had to put the patient under ether. In chronic cystitis with contracture, where the bladder felt through the abdominal walls like the uterus of a woman who has just given birth to a child, where the walls are thickened and she suffers with dribbling of urine, the prognosis Dr. Brothers spoke of was unfavorable. I do not know of a more grateful district in the whole domain of therapeutics than the treatment of those cases. You can cure most cases if you take pains; it requires patience and perseverance, not only on the part of the patient, but on the part of the physician. The best cure is by the gradual dilatation of the bladder, and the proper way to do that is by the pressure method. I always use a funnel, as with it you can regulate the pressure to any degree.

DR. H. N. VINEBERG.—It is a matter of surprise to me that any one in this country to whom Howard Kelly's method is known should go abroad to study a much more complicated and a decidedly less useful method. The advantages of Kelly's simple method of cystoscopy in the female, over electrocystoscopy as described by the reader of the paper, are so numerous that one scarcely knows where to begin.

1. Kelly's cystoscope is a plain metallic tube and can be easily sterilized. Casper's cystoscope is a complicated instrument which is sterilized with difficulty. Casper¹ advises that the instrument be sterilized by submerging it, except the funnel part, for twenty-four hours in a three per cent carbolic acid. Should the instrument be required for use twice in the same day, it must be carefully cleansed with a soft brush and soap, care being taken that no fluid enters the funnel.

2. With Kelly's method the interior of the bladder is inspected directly, and the character of the objects seen as easily recognized as they would be on the surface of the body. With Casper's instrument the objects are viewed through a prism and through the medium of a fluid. It takes some training to distinguish the true nature of the objects presented to the vision, and there is in consequence a great latitude for errors.

3. One of the most frequent and rebellious conditions in women is chronic cystitis. Its detection can be accomplished with both instruments, but here the usefulness of Casper's instrument ends, while Kelly's cystoscope affords us one of the greatest aids in bladder therapeutics by permitting direct applications with the aid of sight to the diseased areas. This advantage cannot be sufficiently estimated by any one who has not availed himself of it, and is of itself sufficient to completely supersede the Nitze-Casper method. I have a case under observation now which forcibly illustrates the great value of making direct topical applications to the diseased areas in obstinate cystitis. The patient, a trained nurse, had been for the past three years under the care of some of the best known specialists in the city. Her bladder symptoms were so severe and obstinate that a suprapubic cystotomy was done. This afforded some relief while the fistula was kept open, but on its closure the symptoms returned with their former severity. Instillations of solutions of nitrate of silver were now made into the bladder. The symptoms only grew worse. The patient almost became desperate. When she went out in the daytime she had to wear a rubber bag to catch the urine, which was evacuated from the bladder every few minutes. At night she kept a pus basin at her side, as she would be compelled to urinate every ten or fifteen minutes. The act of micturition was attended with agonizing pain and tenesmus. After six weeks' treatment, in which topical applications of solutions of nitrate of silver varying from five per cent to twenty per cent were made to the ulcerated and eroded patches, of which there were a great many,

¹ "Handbuch der Cystoskopie," Leipzig, 1898, p. 48.

the symptoms underwent most remarkable improvement. She could retain her urine for three and four hours during the day, and had to get up to urinate only two or three times during the night. At present she often can sleep through the whole night without having to get up once.

4. The removal of small foreign bodies from the bladder, the snipping-off of small growths, and the curetting and cauterizing of the vesical mucosa are easily effected through a medium-sized Kelly's cystoscope. On the other hand, one has only to see Nitze's operation cystoscope and he will be convinced of the technical difficulties inherent in its use. Casper himself speaks of it in very reserved terms.

5. Cystoscopy has frequently for its object the detection of the condition of either kidney. With Kelly's method this frequently may be attained by getting the ureteral orifice into view and noting the character of the fluid the ureter is discharging. Casper states that with his cystoscope he is frequently unable to do so, and has in consequence to resort to catheterization of the ureters. The explanation of this difference in the two methods has already been referred to. In the one we view the discharge with the naked eye, in the other through a prism and the medium of a fluid.

7. Although admitting that the risk of infecting a sound kidney by catheterization of the ureter has been very much overdrawn, it must be conceded that such a risk is present even in the most skilful hands. Now, with Kelly's method this risk is reduced to a minimum. With the patient in the knee-chest posture, and having gotten the ureteral orifice into the lumen of the cystoscope, the catheter may be directly passed into the ureter with the aid of light and without coming into contact at all with the vesical mucosa. This is certainly a great advantage when we are examining for a tuberculous kidney and when a certain amount of localized secondary affection of the bladder is almost invariably present. One may even take the precaution of swabbing the speculum and mouth of the ureter with a wad of antiseptic absorbent cotton before passing the ureteral catheter. This precaution cannot be taken with Casper's cystoscope. It is true the bladder is filled with a boric acid solution, but it is not of such a strength (three per cent) as to kill the tubercle bacilli. Consequently the catheter before reaching the ureter must pass through a fluid in which tubercle bacilli may be present. Further still, with Kelly's cystoscope, by applying the end of the instrument or one shaped for the purpose over the ureteral orifice, urine may be collected directly from either kidney, thus further obviating the necessity of catheterizing the ureters.

Dr. Skene and the reader of the paper laid great stress upon the advantage of the Nitze-Casper cystoscope over Kelly's in that its calibre was small and required no prior dilatation of the urethra. Now, as a matter of fact, no dilatation of the urethra is necessary, as a rule, with Kelly's method. For simple cystoscopy a No. 8 (8 millimetres) is sufficient. This is no

larger than the Nitze-Casper instrument. I have even been able to catheterize the ureters through a No. 8 cystoscope. I have never had occasion to use a larger cystoscope than a No. 10, excepting a few times when I was a novice at the work and once since when I had occasion to remove a hairpin from the bladder. In the majority of women this size can be passed without prior dilatation of the urethra. This certainly I am safe in saying, that after having used the cystoscope several hundred times I have never observed a single instance where the control of the vesical sphincter was in the slightest degree impaired by its use.

A great deal of stress has also been laid upon the traumatism likely to be produced by the sharp end of Kelly's cystoscope. Of course a bungling use of the instrument might injure the vesical mucosa. But an unskilful use of the Nitze-Casper cystoscope is attended with even greater danger. Casper states that a novice frequently pushes the beak of the instrument against the vesical wall and makes a pocket for it, with the result that the mucosa is burned by the lamp and the examiner wonders why he can't see anything. Traumatism of the bladder wall can and ought to be avoided with either instrument.

DR. BROTHERS.—I feel grateful to the Society for the cordial reception I have received. I feel particularly thankful to Dr. Skene for his statements. In regard to the word of caution as to the manipulation of the bladder, my feeling is expressed in my paper. I have used the piston syringe in fifty or one hundred cases and have done no damage. There has been no particular skill on my part. An ordinary soft catheter is passed first. The syringe cannot hold more than six ounces; it is filled slowly. At the first expression of sensitiveness on the part of the patient the introduction ceases. As this is done with the flow from the fountain syringe, I cannot see any harm in it. I feel that you can accomplish a less amount of dilatation than with a continuously flowing syringe. In the piston syringe we have the amount of liquid measured; with the fountain syringe we do not—that is my reason for using it. I formerly used the fountain syringe.

Dr. Vineberg took my paper very much to heart, as was shown by his coming prepared with a typewritten argument. I did not say the Nitze method was the only one to be used; in fact, I gave Kelly all the credit due him. On the other side he is not given that much credit—Koplik is getting it all.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Meeting of Friday, December 15, 1899.

The President, S. S. ADAMS, M.D., in the Chair.

DR. W. M. SPRIGG read a paper entitled

EXTERNAL PALPATION VERSUS VAGINAL EXAMINATION IN NORMAL LABOR.¹

DR. H. D. FRY said he was not prepared to adopt external palpation to the extent suggested by the essayist. The paper is timely, because this valuable method of diagnosis is not to be neglected, but its value is only gained by constant practice. He agreed with the essayist that it is wise to make an examination two or three weeks before delivery, though it is not always necessary to make a vaginal examination, viz., in those cases where the pelvis is normal in measurement and the head well down the pelvis or will go down on pressure. Dr. Fry did not like the title of the paper; it expresses antagonism in the two methods of examination, when one is an aid to the other. He did not consider vaginal examination meddling with midwifery, if we use antiseptic precautions. The vaginal secretion is germicidal in health, but it may become diseased or alkaline, when it has no germicidal properties. In speaking of making preliminary examinations the essayist mentions touching the promontory of the sacrum with the index finger. If the pelvis is normal the finger is not long enough to reach this point. It is valuable to ascertain which side of the abdomen is the back of the child: this can be done by pressing deeply over the linea alba, when fluctuation is distinct on one side and the back of the child on the other. Abdominal palpation is easy in some cases, but not so in others, notably in those with fat abdominal walls. The point of maximum sound of the fetal heart sometimes causes a mistake in the diagnosis of the position, owing to the excessive amount of liquor amnii. He does not believe in using abdominal palpation exclusively, especially since we can make our hands clean or use gloves or the rubber apron over the vulva. There may be no relation between the advance of the head and the dilatation of the cervix. It is important to ascertain the progress of the dilatation and the descent of the head with the finger. In long labors where the cervix is slow in dilating, the speaker thinks he aids it very materially with the fingers, besides not-

¹ See original article, p. 473.

ing the degree of rotation. Sometimes there is a projection from the sacrum into the pelvis which would not be discovered by external measurement. During the course of an occiput-anterior labor it may be necessary to make two or three vaginal examinations. Dr. Fry believes in interfering with labor when we can assist the patient in so many ways.

DR. I. S. STONE said the essayist has done the good thing in that he has shown us that it is possible to do without vaginal examinations. Many of us will confess that a few years ago we thought it impossible to do without the vaginal touch. Speaking of asepsis, he related a case in which there had been a miscarriage and the physician had ordered a douche of bichloride and an enema; there was only one syringe in the house, and it is probable that it would have been used for both purposes without being sterilized.

DR. JOHN T. WINTER said he was glad to hear Dr. Fry defend the necessity for vaginal examination. He had been called to see a case in labor for twelve or fourteen hours, the bag of waters broken and no dilatation of the cervix, and had been compelled to dilate with his fingers. He also often pushed up the head to allow the liquor amnii to escape into the lower segment of the sac. He confessed to not being skilled in abdominal palpation.

DR. W. S. BOWEN said he thought a great deal of this method as described by the essayist. The more you use it the more you like it. He was taught it at the University of Maryland Hospital and had kept it up. It is easy except in patients with fat abdomens. On pushing the fingers well down behind the pelvic brim, if the pelvis is full you know the presentation is vertex; if it is empty, during the last months in a primipara, a breech is suspected, and the diagnosis can be made as easily as if the whole abdominal wall were removed and we could look in. The examination should be made at the beginning of the ninth month. If a breech is discovered we are justified in doing a version. He cited a case of a patient who had been delivered twice, both breech, and both children were lost. The third time he was called and found a breech and converted it into a vertex, and the child was saved. If at the ninth month, in a primipara, the pelvis is empty, we may suspect trouble; it may mean, in a normal pelvis, a large head or placenta previa. Dr. Bowen cited a case in which the pelvis continued empty and he felt a boggy mass on the right side which he thought to be the placenta. He made a vaginal examination and found the os tightly closed. He was called suddenly and found her in convulsions and the placenta previa.

DR. S. S. ADAMS said he thought we were unable to judge of the progress of labor by abdominal palpation alone, at least sufficiently to go away and leave the patient. He also thought that while the patient might be satisfied with abdominal palpation before labor, she would be hard to convince that she was being rightly treated if a vaginal examination was not made during labor.

DR. E. E. MORSE said he had practised this method of examination and found it very valuable, but he did not rely on it alone; though he believed that the fewer vaginal examinations made the better.

DR. W. M. SPRIGG said the object of his paper was to call forth a discussion on the advantages of abdominal palpation. The subject is not given the consideration it deserves by teachers. It can only be learned by continued practice. He agreed with Dr. Fry that the time often comes when vaginal examination is necessary, as he stated in his paper. In normal labor vaginal examination is not always necessary. The practice of vaginal examination half-hourly, as suggested in some text books, is unnecessary. He thought it possible to tell the amount of flexion and also to aid flexion through the abdominal wall.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of January 3, 1900.

The President, MR. ALBAN DORAN, in the Chair.

DR. HERBERT SPENCER read a paper on four cases of

RUPTURE OF THE UTERUS SUCCESSFULLY TREATED BY
PACKING THE TEAR PER VAGINAM WITH IODOFORM GAUZE.

They were the only cases in which he had adopted this method of treatment, and the only cases which he had known recover. All the others (about eight in number) have died in a few hours from shock and hemorrhage or in a few days from sepsis. Twice he had performed abdominal hysterectomy with a fatal result. After quoting some remarks he made in the Obstetrical Transactions for 1897 upon the great danger of the operation of abdominal hysterectomy in patients shocked by rupture of the uterus, the author expressed the belief that the mortality of rupture of the uterus might be lessened by the use of gauze packing. Having alluded to the advocacy of gauze packing by others, he expressed his own views, for the purpose of discussion, as follows:

In the treatment of rupture of the uterus—

1. *Abdominal section* is rarely required, and almost solely in cases where the fetus has passed completely or in great part into the peritoneal cavity. It should be performed rapidly under local infiltration anesthesia, and should be followed by flushing of the peritoneal cavity with normal salt solution and by suture of the tear, if possible, or, if this be not possible, by packing the tear with iodoform gauze and draining by the vagina or abdomen.

2. *Abdominal hysterectomy* is hardly ever necessary; when the broad ligaments are so much damaged as to endanger the vitality of the uterus, vaginal hysterectomy should be performed.

3. All incomplete tears implicating the broad ligament and most complete tears should be treated by *packing the rupture per vaginam with iodoform gauze*, after removing clots and fluid blood.

DR. PETER HORROCKS thought that a very strong distinction should be made between cases of laceration of the cervix and rupture of the body of the uterus. In two of Dr. Spencer's cases the laceration had not penetrated the peritoneal cavity. Such cases often did well without any gauze packing, and indeed without any treatment at all, and the chief point was to stop hemorrhage and see that everything was done aseptically. He had had several cases in which the peritoneal cavity had been opened by the rupture, and the results had been highly satisfactory in recent years. He attributed this not alone to the packing by gauze, but to the fact that the labors had been conducted aseptically. He gave details of a case in which the rent was sewed up, but the patient died in forty-eight hours. In another case he had put in two stitches, so as to draw the gaping wound together somewhat, and then he packed with salalembroth gauze, which was removed every twelve hours under chloroform for the first few days and once a day afterward. The patient made an excellent recovery, but one of the stitches gave trouble and had to be removed nine months later. She had since had a living child, the labor having been brought about at the eighth month. He gave details of three other successful cases in which salalembroth gauze was used and tincture of iodine solution as a douche. He thought Dr. Spencer had left the gauze in too long. He thought the best treatment, in cases which could not be treated in the way above mentioned, was to open the abdomen and sew up the tear with sterilized silk. He gave details of a case in which this had been successfully done and the patient recovered, although the abdominal wound burst open and the bowels protruded on the tenth day. He saw no reason to change salalembroth gauze for iodoform gauze.

DR. HERMAN said that the suture of a ruptured uterus was useless unless the edges of the wound were brought accurately together throughout its whole length; one or two sutures far apart were worse than useless. In cases in which complete suture of the wound could not be done he thought packing with iodoform gauze was the best practice. If the rent was so situated that packing with gauze was impracticable, he thought vaginal hysterectomy would give the patient the best chance.

DR. LEWERS said he had had a case of rupture of the uterus at the London Hospital about eighteen months ago in which iodoform gauze packing was adopted and the patient, though very ill for a week, recovered. Dr. Lewers believed that iodoform gauze varied a good deal in strength, and, except.

when the less highly iodoformed gauze was employed, there was a good deal of danger of iodoform poisoning; he had of late used carbolic gauze in the peritoneum with satisfactory results.

DR. DRUMMOND ROBINSON was much interested in the subject. He had had three cases of ruptured uterus under his care. In one case the patient died within a couple of hours of a complete rupture. The other two cases recovered. The first of these was an incomplete rupture into the left broad ligament; there was very little hemorrhage at the time or afterward. No drainage was employed, and the patient recovered. The second successful case was that of a multipara of about 40 years of age, delivered by forceps. The tear (a complete one through the cervix and lower segment anteriorly) was packed with cyanide gauze. The patient was very ill for a fortnight, but subsequently made a good recovery and had given birth to another child quite normally. A few days after the rupture a sinus developed at the umbilicus; this healed up in a few days.

THE PRESIDENT said absorption of iodoform caused rapid pulse, which is very confusing, as it may be taken as a symptom of sepsis. Many foreign authorities objected now to iodoform or any other chemical antiseptic agent in packing wounds. Did Dr. Spencer hold that iodoform gauze was an active antiseptic germicidal agent?

DR. HERBERT SPENCER, in reply, said that two of his cases were complete ruptures and two incomplete. The distinction between laceration of the cervix and rupture of the body of the uterus could not be sharply drawn; most cases of the latter did actually involve the cervix. Slight cases of laceration of the cervix up to or even beyond the vaginal insertion were of small importance; but where, as in his two cases, the cervix and lower segment were lacerated so extensively as to admit the half-hand into the broad ligament, and there was much hemorrhage and shock, the danger was great. The extent of the laceration in the uterus was of less importance than the extent of the laceration of the vessels and tissue of the broad ligament. He had known death to occur where a cervical laceration was so short as not to involve either os. It was his experience and belief that these severe incomplete lacerations actually killed more women than the complete ones. He wished again to emphasize the great danger of abdominal section in rupture of the uterus, and agreed with the remarks of Dr. Herman as to the uselessness of partial suture. He considered it undesirable to inject an irritant like iodine solution into the peritoneal cavity, and dangerous to give chloroform and change the gauze every twelve hours. Iodoform gauze might be left in for six days or longer. The cases related by other speakers strengthened his belief in the value of gauze packing. Though iodoform gauze was not free from risk, he believed, in anemic cases like those under discussion, it was less dangerous than cyanide or carbolic gauze, or even sterilized gauze, which would not long remain aseptic in the vagina.

The following specimens were shown: DR. EDEN: (1) Adenoma of the uterus; (2) Cast of uterus. THE PRESIDENT (for Dr. Pawlik, of Prague): (1) Photograph of primary cancer of the Fallopian tube; (2) Macerated fetus successfully removed from abdominal cavity two months after spurious labor. MR. MALCOLM: Bilateral pyosalpinx, communicating.

Annual Meeting, February 7, 1900.

The President, MR. ALBAN DORAN, in the Chair.

The reports of the Treasurer, the Honorary Librarian, and the Chairman of the Board for the Examination of Midwives were received, adopted, and ordered to be printed in the next volume of the Transactions.

Sir William Overend Priestley and Dr. James R. Chadwick were elected Honorary Fellows of the Society.

Votes of thanks were passed to the retiring Vice-President, Members of Council, Honorary Secretary, and Honorary Librarian.

THE PRESIDENT then delivered the

ANNUAL ADDRESS,

including the usual review of the work of the past year. During 1899 the Society lost ten ordinary Fellows, but none on the honorary list. Obituary notices of the ten deceased Fellows were then read; the list included one original Fellow, Dr. J. A. Duncan, of Covent Garden; Mr. Lawson Tait, on whose work the President dwelt at some length; Mr. G. F. Farr, of Kensington, and Dr. J. M. Bright, of Forest Hill, who both died on January 11; Mr. W. R. Dambrell-Davies, once assistant to Dr. Clay, of Manchester; Mr. Clement Pound, of Odiham, Hants; Dr. A. T. Gibbings, of Dalston; Dr. T. Cargill Nesham, Lecturer on Midwifery at the University of Durham College of Medicine, Newcastle; Dr. Samuel Johnson, of Stoke-on-Trent; and Dr. James Ford, of Eltham.

The officers and others members of Council were appointed for the year 1900 as follows: *President*—Alban Doran, F.R.C.S. *Vice-Presidents*—John W. Byers, M.A., M.D. (Belfast), William Radford Dakin, M.D., John Phillips, M.A., M.D., Jamieson Boyd Hurry, M.A., M.D. (Reading). *Treasurer*—James Watt Black, M.D. *Chairman of the Board for the Examination of Midwives*—Percy Boulton, M.D. *Honorary Secretaries*—Herbert R. Spencer, M.D., Amand Routh, M.D. *Honorary Librarian*—Montagu Handfield-Jones, M.D. *Other Members of Council*—Augustus W. Addin-sell, M.B., C.M., A. H. Freeland Barbour, M.D. (Edinburgh), George Francis Blacker, M.D., Robert Boxall, M.D., Francis Henry Champneys, M.A., M.D., Thomas Vincent Dickinson, M.D., Angus Fraser, M.D. (Aberdeen), Arthur Edward Giles, M.D., George Ernest Herman, M.B., Thomas Robert Lombe,

M.D. (Torquay), John Dysart McCaw, M.D., Ewen John Maclean, M.D., Hugh James Moon Playfair, M.D., William Loudon Reid, M.D. (Glasgow), George H. Drummond Robinson, M.D., William Japp Sinclair, M.D., Arthur Francis Stabb, M.B., B.C., John William Taylor, F.R.C.S. (Birmingham).

The following specimens were exhibited: DR. AMAND-ROUTH: Conjoined twins. DR. W. S. A. GRIFFITH: Cancer of ovary. MR. CUTHBERT LOCKYER: Intraligamentary oöphoric cystoma.

Meeting of March 7, 1900.

The President, MR. ALBAN DORAN, in the Chair.

MR. ARTHUR KEITH, introduced by Dr. Lewers, gave a lantern demonstration on the anatomy of two specimens of dropsical parasitic fetuses. One, given to him for examination by Dr. Lewers, was at full term, the other was in the fifth month. In both the circulation was carried on by the host-fetus, each fetus being one of twins. Each fetus was therefore of the nature of a bud, the parasite being supplied with impure blood from the host. In both specimens the hinder extremities and the caudal end of the body were better developed than the anterior extremities and cephalic ends.

The principal interest in these specimens was in the fact that they reproduced the lesions which many observers had experimentally produced in chick embryos hatched under abnormal conditions of temperature and position. Such chicks showed (1) dropsical conditions of the tissues and closed cavities, especially a dropsy of the central nervous canal, (2) malformations of the blood islands and primary blood vessels, and (3) abnormal segmentation of the trunk. Such lesions appear in the two specimens, and probably as early as the fifteenth day. In the younger of the two, segmentation forward had been arrested at the seventh cervical segment, the central nervous system in front of that point being absent. The fore-gut was also absent, but the glands and structures derived from that part of the gut, the heart, nodules of bones representing the mandible, hyoid, and base of the skull, and three processes representing the fronto-nasal and lateral maxillary processes, were present. In the larger specimen anterior segmentation was arrested in the frontal region, the fronto-nasal and maxillary processes being present, with the cerebral vesicle and central nervous tube, which was so dilated that it had burst the skull apart and carried with it the separated bones on the one side and the shoulder girdle on the other. The fore-gut was present, with the lung buds and a small, functionless, three-chambered heart. In the smaller fetus segmentation had proceeded backward to the third coccygeal segment, leading to a normal development of the hind-gut and its derivatives. In the larger specimen segmentation was arrested at the first lumbar vertebra, with the

result that the hind-limb buds were left in close contact, a symmelian extremity resulting. Many ribs and vertebrae were imperfectly separated. The hind-gut ended blindly and there were no external genitals. The blood in the umbilical veins showed more leucocytes than red blood discs. The subcutaneous tissue was mucoid, there were no structural differences between arteries and veins, and nucleated corpuscles, some containing hemoglobin, were found in the bone marrow.

In both specimens the thyroid, spleen, thymus, and liver were absent. In the larger fetus ovaries and rudimentary kidneys were present, and in the smaller fetus the genito-urinary arrangements of a fifth-month fetus were noticeable.

These dropsical parasitic fetuses were probably the result of an imperfect division of the ovum to form twins. It is known experimentally that absorption of part of a segmenting ovum leads to such errors in development. A parasitic fetus is probably the result of the unequal division of a twin-forming ovum.

THE PRESIDENT said he had published a communication on "Acardiac Monsters in the Museums of London Medical Schools," which was to be found in the Society's Transactions for 1889. He congratulated Mr. Keith on his lucid demonstration of a very complicated teratological subject. Dr. Boxall's and Mr. Keith's two specimens bade us reflect on the precise significance of fetal edema and anasarca.

DR. JOHN PHILLIPS read a paper on a case of

EXTRAUTERINE GESTATION

in which fetal death occurred at term after spurious labor, and where abdominal gestation was performed four to five months later.

The patient, age 31, with three children, the youngest nine years ago, menstruated last normally in November, 1896 (the exact date being uncertain). About a month later she was seized with severe abdominal pain and was ill for fourteen days. Subsequently all the symptoms of a normal pregnancy developed; she had, however, frequent and prolonged attacks of pelvic and abdominal pain. At term a spurious labor occurred, and subsequently the signs of pregnancy became less marked and the abdomen less distended. From four to five months afterward she was seized with much pain and fever after a rigor. The abdomen was opened and a full-term dead fetus removed from an extrauterine sac. The placenta, which was putrid, was removed without hemorrhage. The patient made a good recovery and is now in good health.

DR. CULLINGWORTH commented upon the normal condition of the Fallopian tubes in this case. As tending to corroborate Mr. Bland Sutton's observations on the analogy between the behavior of the uterus and the Fallopian tubes when expelling a contained ovum, he had on a previous occasion exhibited to

the Society a Fallopian tube which had entirely resumed its normal appearance ten hours after the occurrence of rupture and expulsion of an early ovum. He thought that the author's theory was correct—viz., that there had been a complete tubal abortion and that the ovum had preserved its vitality and had continued to develop in the abdominal cavity. He thought the fetal sac would then be the fetal membranes, but wished to know if it had been examined. He asked for further details as to the site of implantation of the placenta, and especially as to whether the placenta had retained its connection, wholly or in part, with its original site, which was the general rule.

THE PRESIDENT observed that his own case of removal of a putrid fetus would shortly be reported. It was not "abdominal," but of the "posterior ligamentary" type, infection occurring through the walls of the rectum. The patient did well for six weeks, and then sank slowly from marasmus rather than complete obstruction, dying in the ninth week. He asked Dr. Phillips whence the putrid infection was derived in his case.

DR. JOHN PHILLIPS, in reply, said that a piece of the sac wall had been excised and microscopically examined, and consisted of fibrous tissue. The colon was incorporated in the sac walls, and hence the putrefactive changes which took place.

MR. G. W. B. LAWRENCE, introduced by Dr. Blacker, gave a short demonstration on

SPONDYLOLISTHESIS.

The following specimens were shown: DR. BLACKER: Specimens illustrating Mr. Lawrence's demonstration on spondylolisthesis. DR. MACNAUGHTON-JONES: Two cases of congenital malformation of the genital organs. DR. LEWERS: (1) Rupture of the uterus, with a dermoid cyst of the ovary; (2) Fibroid undergoing mucoid changes; abdominal hysterectomy. DR. CULLINGWORTH and DR. FAIRBAIRN: An acutely inflamed ovarian cyst communicating with a chronically inflamed Fallopian tube. DR. BOXALL: Fetus with anasarca and large placenta.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Influence of Rest upon Duration of Pregnancy.—The influence of repose upon the duration is shown by a statistical study by Sarrante-Lourie⁹⁹ of 1,550 cases at the Lariboisière Hospital and of 1,550 from the Michelet Asylum, in the latter of which complete rest is employed. The duration for primiparæ at the latter was 272 days, at the Lariboisière 246 days; for pluriparæ, 269 days at Michelet, 247 at Lariboisière; for multiparæ, 270 days at Michelet, 248 at Lariboisière. The

advantages of rest in prolonging pregnancy to nearly term are shown by a lengthening of the period of gestation by about three weeks.

Ovarian Cyst during Pregnancy.—Bonte⁶⁴ describes a case of large ovarian cystin which labor was successfully completed by the aid of forceps. Four weeks later the tumor, containing about thirty litres of fluid, was removed.

Fibrous Tumor Complicating Pregnancy.—Wm. Duncan⁶⁵ tells of a case of pregnancy complicated by a fibrous tumor of the supravaginal and intravaginal cervix. This tumor was intimately adherent to the vagina. It was decided not to wait until the child was viable, on three grounds: (1) at the end of pregnancy a woman is in a most unfavorable state of health for recovery after what would necessarily be a prolonged operation; (2) she would have kept on losing blood for several months longer; and (3) the possibility of the growth being sarcomatous. The patient complained chiefly of loss of blood. Abdominal hysterectomy was performed and the tumor removed with difficulty from the vaginal wall.

The Vomiting of Pregnancy.—D. J. Evans⁶⁶ believes that the essential exciting cause of the paroxysms of nausea and vomiting of pregnancy is frequently the physiological contraction of the muscular fibres of the uterus.

A case of uncontrollable vomiting of pregnancy, beginning at the ninth week before labor, is recorded by C. Coffart.⁶⁷ Spontaneous abortion was followed by gastric pains. For several days some vomiting and nausea persisted. In three weeks the patient was able to be out of bed.

Pyelonephritis and Pregnancy.—Lepage⁶⁸ reports two cases who during pregnancy suffered from pain and swelling in the region of the right kidney, while the urine contained pus. In both cases the passage of urine through the ureters seemed to be interfered with by pressure by the head. Milk diet alone was employed. In one patient premature labor was induced, in the other it occurred spontaneously. In both the temperature fell and the pulse became normal. Lepage writes that whenever a pregnant woman complains of lumbar pain, with fever and rapid pulse, the urine should be examined for pus. Rest in bed, milk diet, and a mustard paste over the painful lumbar region constitute the treatment of pyelonephritis, reserving bladder irrigation until positive signs of cystitis appear. Interruption of pregnancy may be necessitated by persistence of fever and bad general condition.

The Blood Pressure during Menstruation and Pregnancy.—Wiessner⁶⁹ reports the results of an exhaustive investigation with the sphygmomanometer of Riva-Rocci to determine the arterial pressure during menstruation and pregnancy. With the onset of menstruation the blood pressure declines about twenty millimetres, attaining the lowest level when the flow is most copious. The normal pressure is regained about three to four days after the cessation of the menses. In the latter months of gestation the blood pressure gradually height-

ens, becomes intensified with the onset of labor pains, and attains the highest point at the end of the second period. With the expulsion of the child the pressure rapidly diminishes. Eclampsia causes enormous variations in pressure. Before an attack the mercury column rapidly ascends, thus invariably forecasting an attack. According to Wiessner, blood-letting has hardly any effect upon the blood pressure and does not lower the arterial tension.

Hypertrophy of Recti in Pregnancy.—Durante⁴⁹ shows that although the recti abdominis atrophy when displaced by abdominal tumors, the number of fibres actually increases during pregnancy, so that, although stretched and flattened, the muscles are really hypertrophied.

Extrauterine Pregnancy.—Küstner⁵⁰ discusses the etiology and treatment of ectopic gestation, with a summary of his operations during the years 1893–1898. Recent investigations show conclusively that extrauterine pregnancy is always preceded by some inflammatory changes of the pelvic organs. Not every case of tubal pregnancy terminates in rupture; indeed, tubal abortion is much more frequent than usually supposed. Curettement for diagnostic purposes is both dangerous and unnecessary. Operative indications should not be too much limited; in fact, ectopic pregnancy is for all practical purposes a malignant pelvic tumor. Abdominal operations have many advantages, permitting thorough inspection of the abdominal contents, better hemostasis, and greater facility in removing the diseased adnexa.

Measles and Pregnancy.—According to Salus⁵¹ measles usually terminates an existing pregnancy. He reports 13 cases, of which 10 aborted. The cause for the abortion, generally occurring when the eruptive stage is most marked, is found in multiple hemorrhages between the membranes and uterine walls. The decidual vessels are enormously distended, but an endometritis exanthematica, as observed by Klotz, was not found.

Hydrorrhea Gravidarum.—Vander Hoeven⁵² reports 3 cases of hydrorrhea gravidarum personally observed, and remarks that these cases are probably not very rare, but are frequently, except if quite pronounced, overlooked by both physician and patient. A chemical analysis of the fluid shows that it contains neither albumin nor urinary constituents, thus proving that it could not be a derivative of the amnion or allantois. The author believes, although he cannot prove it, that the fluid originates from a hypersecretion of the utricular glands.

Rupture of the Amnion.—Keiffer⁵³ has observed a case in which rupture of the amnion occurred at five months, and pregnancy continued until the eighth.

Amniotic Infection.—In discussing this subject, Lehmann⁵⁴ states that infection of the liquor amnii may occur from primary infection of the fetus by the mother, or more frequently directly from the vagina after rupture of the membranes. As a result of this accident the child may die *in utero* or show

after birth redness and swelling of the eyelids, ophthalmia, multiple subcutaneous abscesses, or infection of the umbilicus, respiratory or digestive system. Infection should be avoided by antiseptic douches and sterile vulvar dressings, and, if present, rapid dilatation of the cervix and version or forceps should terminate the labor at once. After the child is extracted the skin, umbilicus, eyes, mouth, and throat should be carefully cleansed.

Twin Pregnancy with Central Placenta Previa.—H. Oliphant Nicholson⁴⁰ cites a case of this variety. On examination a placenta was found engaging the whole diameter of the os. One edge of the placenta was detached, and, as one head was presenting, forceps were applied and the child delivered. The hand was introduced and a second set of membranes ruptured, the feet of the child seized, and the body delivered. The placenta of the first child was found in the vagina; that of the second child, attached to the lower zone.

Air Embolism in Placenta Previa.—Hübl¹ publishes two cases from Braun's clinic. The first was a woman 40 years old with a rachitic pelvis. The patient collapsed while version was performed. Postmortem showed the right side of the heart filled with air. The upper margin of the placenta was detached, and a blood vessel the size of a crow's quill was wide open and probably formed the entrance gate of the air. In the second case death occurred about nine hours post partum, also after version. Death was preceded by several attacks of collapse. No postmortem in this case. The author discusses the differential diagnosis of chloroform collapse and air embolism. In the latter there is usually a sudden escape of liquor amnii and a consequent rush of air into the cavity of the uterus.

Apparent Death of the New-born.—Keiffer⁴⁶ believes that attempts to resuscitate apparently still-born children are frequently given up too soon. He cites a case in which breathing did not begin until thirty-five minutes after commencing artificial respiration, and another in which fifty minutes elapsed before this result was obtained.

Intrauterine Respiration.—Bufnoir and Demay⁴⁹ describe a case which is of medico-legal interest. After the spontaneous birth of one living fetus the woman was brought to the hospital with the shoulder of a dead fetus presenting. Death had occurred from separation of the placenta, and embryotomy was performed before attempting version. The autopsy of this fetus showed that the right lung contained some air but would not float in water. The left had become well aerated and floated in water. The writer holds that this case is evidently one of spontaneous intrauterine respiration, as the fetus was dead before traction was made upon the arms.

External Cephalometry.—M. Perret⁵⁰ discusses external cephalometry and its value in connection with the induction of premature labor in cases of contracted pelvis. The woman lies upon her back; the fetal head is palpated and placed with the

occipito-frontal diameter in as nearly a transverse position as possible. With an instrument resembling a pelvimeter, the occipito-frontal diameter is measured through the abdominal wall by subtracting from the gross measurement that of a fold of the abdominal wall pinched up. Perret has found by experimental observations that the average difference between the occipito-frontal and biparietal diameters is twenty-five millimetres. He quotes a number of cases previously reported to show the accuracy of this method.

The Umbilical Stump.—A. Martin¹¹ recommends a new aseptic treatment of the cord which is both simple and effectual. The cord is ligated in the usual manner and the child bathed and cleaned. A sterile silk ligature is placed around the cord immediately beyond the skin, and the rest of the stump is divided with a pair of heated scissors (or the Paquelin cautery) about one and a half centimetres above this ligature. The cord is dressed with sterile gauze. This treatment is said to give surprisingly good results and effectually prevents suppuration or secondary hemorrhage.

Dystocia from Rigidity of the Cervix.—In discussing this subject Pinard¹² divides such rigidity into pathological rigidity before pregnancy, caused by neoplastic infiltration or by cicatricial tissue; rigidity by infiltration during labor. The latter does not extend beyond the cervix, while the former may involve the lower segment of the uterus. Incisions may be insufficient in cases of pathological rigidity, and when the neoplastic infiltration or cicatricial tissue has passed beyond the limits of the vaginal insertion, since the incisions should never be carried further than to these limits. In these cases more radical operations are indicated. Incisions for rigidity by infiltration are rarely advisable. The writer prefers hot intra-uterine injections.

Walcher Position.—G. Eustache¹³ holds that the so-called Walcher position has not in any way changed the indications for and methods of treatment of contracted pelvis. He admits that hyperextension increases the diameter of the pelvic inlet, and so favors placing the woman in that position for a short time if engagement is slow. If the head is delayed while in the cavity, the position of hyperflexion may be employed. Eustache holds that the latter is more useful than the position of hyperextension, and cites in support of this view the fact that a woman frequently assumes this position during labor, but not the Walcher position.

Subcutaneous Emphysema.—Schöffelaar¹⁴ observed an interesting case of subcutaneous emphysema during labor. This complication is usually met with in primiparæ (93 per cent), and is probably due to efforts to overcome an excessive resistance. It begins with an interstitial pulmonary emphysema and rupture of some alveoli. The air then enters between the parenchyma of the lungs and pleura, and, traveling along the bronchi, finally appears in the anterior mediastinum and neck, forming an appreciable swelling. The

history of these cases usually shows abnormally large children, with pelvic contraction or rigidity of the soft parts; pelvic contraction, however, is the most frequent cause. The prognosis is favorable.

Living Child delivered by Forceps after Death of Mother.—Fleischmann¹³ reports an interesting example of these exceedingly rare cases. The author was summoned to a primipara, 30 years old, in labor about thirty-six hours. Membranes ruptured twenty-four hours. Edema of the lower extremities. Pulse and respiration normal. Fetus in L. O. A. position, its heart sounds regular, head in pelvic inlet. Os admits two fingers. During pregnancy the patient had suffered from palpitation and dyspnea. She had taken digitalis and amyl nitrite. Because of the rapidly recurring pains, auscultation and percussion of the heart were impossible. To overcome the rigidity of the os, hourly hot vaginal douches were ordered. When seen again, four hours later, the patient's condition had changed for the worse. The pulse was irregular and could not be counted. There were dyspnea and cyanosis. The os was fully dilated. While preparations were being made for immediate forceps delivery, pulse and respiration ceased. Artificial respiration and injections of camphor failed to revive. The forceps was applied about ten minutes after death; a slightly asphyxiated child was delivered, which was quickly revived and continued to live.

Parturition followed by a Brain Lesion.—R. S. Berry¹⁴ cites a case of parturition followed by a lesion of the brain involving the speech and motor area for the right side. The lesion occurred two hours after labor.

Rupture of the Uterus.—Doctor²¹ reports a case of rupture of the uterus in a IIpara, 30 years old, who had a contracted pelvis. Several forceps applications not successful. When seen the uterus was ruptured and the fetus had escaped into the abdominal cavity. Laparotomy and extirpation of the uterus was followed by marked collapse, which, however, was successfully treated with hypodermatic injections of camphor and saline infusions. Recovery.

James Pearse³⁰ reports a case of placenta previa and rupture of the uterus. The labor progressed slowly and a goodly amount of blood was being lost, so he dilated the os, passed his hand up, brought down a foot, and delivered a living child. In returning the hand to remove the placenta, it passed up into the peritoneal cavity through a rent in the uterus. There was practically no treatment. In twenty-three days the woman was out of bed, but eleven weeks after the labor she complained that her strength had not returned.

Belitz-Heimann²⁶ reports a case from the Moscow Maternity Hospital, mainly to show that laparotomy is not necessarily required and patients may recover without any operation. A IIpara, full term, entered the hospital during the first stage of labor. Cephalic presentation. Os partly dilated, pelvic contraction, diagonal conjugate 10 centimetres. Twelve hours

later spontaneous rupture of membranes, followed by severe pains, hemorrhage, and vomiting. Examination showed the uterus empty and contracted. The child had escaped into the peritoneal cavity and could plainly be felt under the abdominal walls. To the left of the uterus a deep tear in the fornix vaginae admitted the whole hand. The latter encountered a foot, which was seized, and both child and placenta easily removed from the abdomen. Subsequent treatment: irrigation of vagina with physiological saline solution, and gauze tampon; ice bag upon the abdomen; saline enemata. General condition good; no hemorrhage; except a slight rise of temperature and vomiting on the third day, no complication. Tampon removed on the fifth day; bichloride douche. Ice and abdominal compression continued to the sixteenth day. Internally small doses of opium.

Criminal Abortion with Uterine Laceration.—Brindeau⁹⁴ reports a case of criminal abortion in which the instrument employed separated the vagina from the cervix, and subsequently passed through the posterior wall of the cervix into the uterine cavity without injuring the peritoneum. The woman claimed that the wound had been produced by herself with a knitting needle.

Effect of Slight Maternal Albuminuria upon the Child.—Vallois⁹⁵ presents two cases bearing upon this subject. In the first a slight, transient puffiness of the eyelids was noticed at about five and a half months. The urine contained only a faint trace of albumin. An absolute milk diet caused entire disappearance of the albumin within fifteen days. On a modified milk diet the mother did well, but a slight amount of albumin returned. A strict milk diet was then adhered to, but the child died at about six and a half months and labor took place at the seventh. The placenta shows lesions of albuminuria. Eight days after labor the urine contained no albumin. The second patient had had slight temporary edema over the malleoli or face. At six and a half months she had general edema, with uremic symptoms. These disappeared upon milk diet, and a few days later a small amount of albumin appeared in the urine and persisted until seven and a half months, when a dead and macerated fetus was born. Albuminuric lesions were found in the placenta. A week later the albumin was no longer present. In view of the slight degree of albuminuria which may cause death of the fetus, Vallois advises a strict milk diet during the whole of pregnancy upon the occurrence of even a small and transient amount of albumin in the urine.

The Pathogenesis and Treatment of Eclampsia.—Fehling⁹⁶ discusses the latest views and investigations of the etiology of eclampsia, and states that hepato-toxemia, which, according to the French school, is the most important etiological factor, is not a primary cause, and that in many fatal cases the liver is found perfectly healthy and free from pathological changes. The kidneys, however, are always diseased. The change is not confined to the kidneys of the mother, but in many cases the fetal

kidneys are also inflamed and degenerated. Another important point elucidated by the author is the fact that the urine in eclampsia is less toxic than in normal subjects, while the serum has marked poisonous properties. If this be so, and it has been verified by other investigations, proof is brought that poisonous substances which are normally eliminated through the kidneys are retained in the circulation and produce toxic effects, manifested by premonitory disturbances and ending finally in the eclamptic paroxysm. According to Fehling the importance of the fetal toxins circulating in the maternal blood has been underestimated, but is nevertheless a fact, and thus the maternal organs are called upon to perform increased eliminative work. The blood of eclamptic subjects contains an excess of globulins, and, as a consequence of disturbed metabolism, the presence of kreatin, kreatinin, and carbamic acid in the blood is explained. If the theory of fetal intoxication is accepted, the comparative prevalence of eclampsia in twin pregnancy has a more rational basis. Early rupture of the membranes and, when possible, forceps delivery is advocated, if necessary deep cervical incisions after Dührssen. Cesarean section is not favored. Large doses of morphine are objectionable; chloroform may be given only in moderate quantities in the beginning of the attacks, to diminish their severity. Subcutaneous saline infusions, one-quarter to three-quarters of a litre three times a day, are highly recommended, as are also hot wet packs.

Maygrier and Chavane⁴⁹ record the case of a primipara in whose urine traces of albumin had been found, disappearing under milk diet. After stopping this she was suddenly seized with eclampsia, although no albumin was found a day before. After four convulsions albumin was found and death occurred. A bulbar hemorrhage which involved the fourth ventricle was found at autopsy.

Cesarean Section.—Hillmann⁴ reports a case of eclampsia in which he was forced to perform Cesarean section. The woman, a primipara 23 years old, came under observation after she had six convulsions. She was cyanotic and comatose. Pulmonary edema. No labor pains. Os completely closed. The operation was performed to save the mother's life. It could not be decided whether the child was alive or dead. After the uterus was emptied there were no further convulsions, and immediate improvement was followed by recovery. The child was still-born.

At a recent meeting of the Berlin Gynecological Society, Olshausen¹⁴ presented a patient on whom he had performed Cesarean section because of severe eclampsia. The woman, a primipara 22 years old, had had fourteen convulsions before labor pains began, and an immediate delivery was indicated. Cesarean section was thought to be most conservative. After emptying the uterus no further attacks were observed and the woman made an uneventful recovery. Olshausen advises Cesarean section in severe cases of eclampsia occurring before the onset of labor and with undilated or

unyielding soft parts. He states, however, that such cases are comparatively rare, because among 250 cases of eclampsia observed by him during the last four years he only operated three times. In all these cases the attacks ceased, but one patient died from eclamptic coma six hours post partum.

Freund²⁷ writes that since the improvement in the modern technique of abdominal operations Cesarean section has lost much of its dangers, and that perforation of the living child is justifiable only under exceptional conditions. In the cases reported a number of complications formed indications for the operation:

Case I.—A primipara, 44 years old; history of rheumatism and alcoholism. Small stature, with rachitic deformities and immense pendulous abdomen. General condition bad: shortness of breath, vertigo, headache, visual disturbances, and edema of the lower extremities and vulva. The urine contains large quantities of albumin, blood corpuscles, and casts. Patient was in the eighth month of pregnancy and was advised to remain in the hospital under a strict milk diet, but refused. When seen four weeks later labor had begun. Pains were ineffective. She appeared stupid; pulse and temperature normal. Urine contained an immense amount of albumin. Fetal head was above the pelvic brim; heart sounds normal. Vagina rigid, almost senile. Cervix hard and undilated, as represented by a slight depression. During the next twenty-four hours pains were feeble and ineffective, and there was a continuous discharge of liquor amnii. Labor hardly progressed; os admitted one finger. Head still movable. Patient complained of vertigo and loss of vision. This condition continued for about twenty-four hours and was followed by a slight eclamptic attack. Cesarean section was performed and a living child extracted. Uneventful recovery.

Case II.—IVpara, 43 years old, was admitted to the hospital after having been in labor for about forty-eight hours. Rachitic pelvis. Previous deliveries instrumental. Pregnant about eight months. Continuous discharge of liquor amnii. The whole pelvis was occupied by a tumor. The woman, who had been addicted to alcohol, looked badly; her face was cyanotic. Had also chronic bronchitis. Pelvis flat, rachitic, with projecting promontory. Child alive; head movable above brim. Vagina admits two fingers. Cervix high; can only be reached with greatest difficulty. Tumor cannot be displaced. Impossible to deliver per vias naturales. Cesarean section. After opening the abdomen it was found that the tumor consisted of a colossal edema of the sigmoid flexure and rectum. (As Freund had never before met with a similar condition, a small portion of the gut was excised and submitted to Recklinghausen for diagnosis. The latter stated that it was simple edema of the interstitial tissues.) The premature child was asphyctic, but was revived and continued to live. During the first five days of the puerperium the patient's condition was good, temperature normal, and uterus well contracted. Tumor

was still present, but diminished in size. After this there was retention of urine and lochiametra. The latter was relieved by the introduction of a Fritsch catheter into the uterus. The general condition became worse; tumor increased in size, blocking access to the cervix. Puncture and incision into the tumor from the vagina was followed by a discharge of small quantities of fluid. A renewed and careful examination demonstrated a small egg-shaped tumor, posterior to the rectum, fluctuating and very sensitive. This was opened and found to be a dermoid cyst, and was probably the cause of the edema. Patient continued to improve and was finally discharged cured.

Case III.—IVpara, 28 years old, marked rachitic pelvis. Previous deliveries instrumental, resulting in dead children. The woman was of small stature; kyphoscoliosis. Contracted rachitic pelvis; pendulous belly. Child alive in transverse presentation. Urine normal. Cesarean section without complications; living child. Uneventful recovery of the mother.

Conditions which Govern Success in the Snger Cesarean Section.—Edward Reynolds⁴² states that the indications which render Cesarean section justifiable vary in accordance with whether the mother is or is not already infected with sepsis; exhausted by prolonged labor or by previous severe efforts at extraction of the child; or the subject of serious complicating disease. When her vitality is lowered by any of these causes, the maternal death rate of the Cesarean section is so enormous that it is justifiable only for the absolute indication, *i. e.*, when the child cannot be extracted by any other method. In the absence of such unfavorable conditions, and under circumstances which render good operating possible, the Cesarean section is no more dangerous to the mother than any other simple abdominal operation; it is, therefore, (*a*) the operation of choice in cases, already at term, in which the ordinary intrapelvic operations are inefficient; and (*b*) may even be chosen in suitable cases in preference to the induction of premature labor, on account of its greater safety to the fetal life. Reynolds reports a list of 14 cases, all of which terminated favorably for mother and child, except in two cases the children died.

Antistreptococcus Serum in Puerperal Septicemia.—H. W. Webber³⁹ reports a case in which a favorable result was obtained from one injection of antistreptococcus serum. The injection consisted of 10 cubic centimetres of serum. This injection was given in the afternoon, and by the next morning the temperature had fallen two degrees, the pulse become slower by thirty beats. The aspect of the patient was much better. The vaginal discharge had decreased in amount, had lost its foul smell, and was much cleaner.

Alex. J. Anderson³⁰ cites a case of puerperal septicemia which had run for one week, and, the patient being in a very low condition, they gave injections of antistreptococcus serum. The first injection was given on a falling temperature. In

one hour and a half it was down to 99.4° , but three hours later went up to 102° . The second injection was given the next morning, and the temperature, which was 101.8° , went up to 103.8° , but got down below normal by 10 next morning. The next day another injection was given when the temperature was going up, and had the effect of keeping it down to 101.4° . The following day the temperature was 99.4° . An injection was given and the temperature fell below normal and remained there three days. He used ten cubic centimetres of the serum at a time.

S. J. Barker³⁵ reports a case successfully treated by serum.

Sergueu¹⁸ reports a case of acute sepsis in which injections of Marmorek's serum were apparently followed by success. The patient was a primipara, 21 years old, who at the end of gestation suddenly became septic. No discoverable cause. The emptying of the uterus brought no relief, and subcutaneous saline infusions produced no improvement. As a last resort 20 cubic centimetres of Marmorek's antistreptococcic serum were injected, and, whether *post hoc* or *propter hoc*, from that time improvement began.

Partial Uterine Gangrene.—At a recent meeting of the Berlin Medical Society, Gottschalk⁶ demonstrated a piece of uterine wall which had become gangrenous and was expelled on the twenty-eighth day post partum in a case of severe puerperal sepsis. The history of the case is briefly as follows: Gottschalk was called in consultation to a primipara, 24 years old, who had been in labor three days. Membranes ruptured three days. Contracted pelvis, pendulous belly. Child in right O. P. position. Head in pelvic inlet. Heart sounds normal. Anterior lip of cervix swollen and caught between head and symphysis. Bandl's ring well marked about three inches below umbilicus. Tetanic contraction, threatening rupture of the uterus. High forceps not successful, therefore version, which, after great difficulty, resulted in the delivery of a living child. The first day post partum the pulse became abnormally frequent and was followed by two severe chills and a marked rise of temperature. Gottschalk again saw the patient on the fourth day after delivery, when she presented a typical picture of acute puerperal sepsis. Pulse small and frequent (130), temperature 104° , respiration 40. Abdomen distended and painful; uterus contracted and very sensitive; lochia without odor; singultus; sleeplessness. Urinary secretion diminished. Uterine irrigation with lysol and sixty per cent alcohol. No improvement. In fact, the woman's condition became worse; pulse more thready; septic diarrhea. Injections of camphor did not improve the symptoms. Gottschalk then ordered saline infusions of one per cent solution, which was followed by an immediate and marked improvement. Sleep and appetite returned. The urinary secretions also became normal. The pulse rate, however, remained high (130), necessitating the administration of digitalis and strophanthus. About the fifteenth day post partum

the lochial discharge became stinking; this was followed two days later by the expulsion of a large mass of necrotic tissue, representing the whole uterine mucous membrane and a portion of its muscular walls. The mass contained immense numbers of streptococci, in parts completely filling and obliterating the veins and lymph channels. The patient recovered. Gottschalk thinks that the intrauterine injections of sixty per cent alcohol may have caused the extensive death of tissue.

Emphysema of the Uterus.—Halban²⁶ observed a very rare and interesting variety of puerperal sepsis for which he proposes the term "septic uterine emphysema." A woman, 41 years old, had a very tedious confinement. The placenta was adherent, necessitating manual removal. Two days later the abdomen became enormously distended by a ballooning of the uterus. The whole region of the uterus showed tympanitic resonance, and as tympanum uteri could be excluded, a collection of gas in the uterine wall was assumed to be the cause. Palpation of the abdomen imparted to the hand a deep-seated, crackling sensation. The woman died on the fourth day post partum with the symptoms of sepsis acutissima. Postmortem showed an enormous collection of gases in the walls of the uterus. Bacteriological examination demonstrated a mixed infection of streptococcus pyogenes and a bacillus emphysematus. It appears that the latter organism can only develop its virulent characteristics when combined with other bacilli, either streptococci or staphylococci.

Uterus Bicornis.—Walls⁷ describes a case of labor in a Vpara with uterus bicornis. Previous confinements were always difficult and instrumental. When seen she had been in labor nineteen hours. The fetal head could be felt in the region of the umbilicus. The vagina was narrow, the cervix very high and almost out of reach. A dead child was delivered by version. The right horn contained the placenta, while the body of the child was found in the left cornu.

Czerwenka³⁷ describes a specimen of uterus didelphys with carcinoma of the cervix on the left side. While the cervical portions are united through intracervical connective tissue, the bodies are distinct and widely separated. Besides left-sided pyosalpinx the left uterus contains two small fibromyomata.

GYNECOLOGY AND ABDOMINAL SURGERY.

Appendicitis in the Female.—J. Bland Sutton³⁹ states that appendicitis is three times as frequent in males as in females. In woman appendicitis is of especial interest on account of its close relations to the pelvic organs, especially the ovary. The normal position of the ovary is at the brim of the pelvis, at a position midway between the sacro-iliac joint and the symphysis pubis. It is a well-ascertained fact that the vermiform appendix not infrequently leans over the brim of the pelvis in the situation occupied by the right ovary. In such circumstances

it would follow that a seriously inflamed appendix might become adherent to the ovary. On the other hand, an inflamed ovary or Fallopian tube might involve the vermiform appendix. As a matter of fact, these complications occasionally arise and give origin to clinical signs which make it difficult to decide whether the patient is suffering from appendicitis or ovarian trouble.

The appendix when hanging free at the pelvic brim occasionally becomes adherent to the stump of an ovariectomy or oöphorectomy. The relation of the appendix to ovarian tumors is also of great importance, especially when many adhesions are present, as it is apt to be mistaken for one of these, particularly when it is chronically inflamed and divided. In a certain proportion of cases the adhesions are caused by an acute or chronic appendicitis.

Acute pelvic suppuration set up by leakage of infective material from the right Fallopian tube is very apt to simulate acute perforative appendicitis. On two occasions the author has made this mistake and operated for appendicitis; in both cases he was able to remove both tubes through the appendicitis wound. In the puerperal woman an attack of acute appendicitis may simulate pelvic cellulitis. It is exceedingly rare that pus from an appendicular abscess makes its way between the broad ligaments. Appendicitis, as already mentioned, may simulate many intra-abdominal affections, but there is a variety which, so far as Bland Sutton knows, has not been adequately considered, in which the infection assumes the form of a cellulitis and embeds the cecum, vermiform appendix, and adjacent organs in such a firm inflammatory mass as to suggest carcinoma of the cecum. A careful study of appendicitis in women demonstrates that the clinical aspects of this disease are even more protean than in men. In those women vaguely classed as hysterical, neurotic, or neurasthenic, who complain of indefinite pain in the pelvis, often ascribed to ovarian trouble, the source of the misery is, in a fair proportion of instances, chronic appendicitis.

Foreign Body within the Abdominal Cavity.—Mertens¹³ publishes a case in which a gauze tampon was found in a coil of small intestines. About five months before, laparotomy had been performed, which, however, did not free the patient from her suffering. Upon examination a movable tumor was found near the umbilicus, and to this locality the pain was referred. The suspicion of a foreign body left in the abdominal cavity arose in the author's mind, and he proposed another operation, which was gladly accepted. The tumor consisted of a distended coil of intestines, apparently containing impacted feces. While attempting to remove this by massage the gut was torn and a strip of gauze was found to be the cause of the trouble. Resection of the gut was followed by slow but complete recovery.

Foreign Bodies in the Abdomen after Operations.—Howard A. Kelly⁴³ offers the following rules to be observed at all operations:

1. In the first place, always commence with a definite number of pieces. Kelly uses seven marine sponges and nine pieces of gauze.

2. Write down upon a slate or a piece of paper the number of pieces of gauze and sponges in use.

3. If more are added, it is the duty of the assistant to instruct the nurse to write them down at once or to receive from her a statement as to how many she has recorded.

4. He would, with Boldt, urge the entire abandonment of small pieces of gauze and small sponges.

5. Avoid packing pieces of gauze up in the abdomen out of sight.

6. The use of a bit of tape, as recommended by Boldt, attached to the corner of the gauze and left hanging out of the wound with a forceps clasped on the end, makes a safe tracer, although this, too, has failed as an absolute safeguard.

7. If marine sponges are used, they may be enclosed in a loose gauze bag with a tracer attached; sponges held in long forceps do not need a tracer.

8. The operator should put the simple questions at the close of the operation, How many pieces of gauze are called for, and how many sponges are called for? These questions should be answered without circumlocution or explanation, by the simple, direct statement of the numbers wanted. In order to keep the assistants on the alert, and as a means of training them to be extremely careful, occasionally hold back a sponge or a bit of gauze, and do not give it up until they insist that it is wanting.

9. Never under any circumstances should the count be muddled by cutting the gauze or dividing a sponge.

10. It is Kelly's practice to make two people responsible for the number of pieces used, as well as for their production at the end of the operation; these are the assistant, who handles the sponges, and the nurse. In some clinics, where fewer assistants are used, it will be necessary to place all the responsibility on one head, either nurse or first assistant.

11. The discarded gauze or sponges must always be thrown into a receptacle, and never, under any circumstances, mixed with soiled dressings, towels, or sheets, or, worst of all, carried out of the room during the progress of the operation.

12. In addition to all the precautions noted, the surgeon must always exercise his vigilance in taking an exact note of everything that is put in the abdomen, and it may be of service to memory to state aloud, "One sponge introduced into the abdomen," "Two pieces are now in the abdomen," etc.

13. An examination should be made in all cases to see by actual inspection and by touch that nothing has been left behind. Such an examination will not, of course, be pushed to an extreme unless there is a missing article to be discovered.

Peritoneal Adhesions and Bands.—According to Gersuney,³ peritoneal adhesions preventing intestinal movements toward the median line are most frequent at the junction of the sigmoid flexure and descending colon. Adhesions between

the vermiform appendix, cecum, ascending colon, and female organs of generation are also observed. In a number of cases the patients give a straightforward history of previous abdominal disease; in many cases such a condition could, both clinically and objectively, be eliminated, and Gersuney believes that intra-abdominal hemorrhages during menstruation and ovulation are their probable cause. Twenty-four cases are reported. In 13 of these no definite cause could be assigned. The patients are, as a rule, badly nourished, have lost flesh and strength, and complain of inability to follow their usual vocation. Laparotomy is indicated, as the separation of adhesions affords prompt relief. The object of after-treatment must be the prevention of new adhesions; for this reason the early and free evacuation of the bowels is urgently advocated.

Fibrosarcoma of the Broad Ligament.—Two cases of fibrosarcoma of the broad ligament, operated upon in the gynecological clinic at Helsingfors, are reported by A. R. Linnell.⁵⁰ The first patient, 35 years old, was in good health four years after removal of the tumor; the second, 51 years of age, was well three years after excision of the growth. The masses were confined to the broad ligaments, being entirely unconnected with adjacent structures.

Myxosarcoma of the Uterus.—C. Jacobs⁵¹ reports an interesting case of this character. The patient, 38 years old, Ipara, had been treated for uterine trouble for three years. Soon after her last labor, metrorrhagia began, augmented at the time for menstruation. Curettage brought away large, soft masses. After two months of relief hemorrhage recurred and a second curettage removed similar material. Metrorrhagia increased, and when seen by the writer the abdomen was filled with irregular tumors, and the uterus, covered with tumors, reached the umbilicus. Jacobs removed the uterus with two large, pedunculated masses arising from the fundus and a smaller, also attached to the uterus, in the left broad ligament. Microscopically the tumor was myxomatous with portions of myxosarcoma. Macroscopically the uterine fibres seemed separated in places, with myxomatous masses protruding. Double lobar pneumonia on the sixth day was followed by recovery, at least temporarily.

An Improved Method of Removing the Cancerous Uterus by the Vagina.—Howard A. Kelly,⁵² in an interesting paper, says: My ideas upon the subject of the extirpation of the cancerous uterus (cervical cancer) have undergone considerable change within the past year. A careful examination of my material and reports from other clinics have shown that we dare not reason too closely upon a supposed analogy between cancer of the uterus and cancer of the breast; in other words, glandular metastases, which play such an important part in the extension of mammary cancer, are relatively unimportant, and as a rule only observed in the latest stages of uterine cancer. More careful histological studies show that the uterine cancer

extends progressively through the tissues from its cervical focus. The great aim of the operation for the extirpation of cancer becomes, therefore, that of giving the diseased cervix the widest possible berth, instead of being, as before supposed, the removal of the uterus plus the extirpation of the pelvic glands. In the first place, the frequent recurrence of the disease in the scar tissue of the vaginal vault points to the importance of commencing the enucleation on the vaginal side at a point far below the manifest limits of the invasion, not less than 2-2½ centimetres distant, or even more.

In order to give the diseased cervix the widest possible berth in the direction outward into the bases of the broad ligaments, I would again insist upon the necessity of catheterizing the ureters in every case as a preliminary to the radical operation. This can be done by putting the patient in the knee-breast position and introducing my open vesical speculum, and carrying one of my renal catheters up into one kidney and then catheterizing the other. The patient is then turned on her back and the air allowed to escape from the bladder through a vesical catheter, and the enucleation proceeded with. If this preliminary catheterization is not done, the operator is forced to adopt one of two courses, both of which are bad: either he must skin out the cervix for fear of including the ureters in his ligatures, or he must consume a long time in a difficult dissection of the ureters not marked out by the bougie. The latter alternative many feeble patients will not stand. I insist, therefore, with the utmost earnestness and emphasis, that the surgeon who proposes to give his patient the best possible chance of recovery is under the absolute necessity of learning to catheterize the ureters.

After this most important preliminary and after a thorough curettage of the diseased area, I cut through the vagina on all sides and proceed to strip it loose from the bladder, so as to expose the vesico-uterine peritoneum, and to open the peritoneum as widely as possible at this point. If the bladder is diseased, the base of it may be cut off and left sticking to the cervix. The peritoneum is now also opened posteriorly into the recto-uterine pouch, so that the uterus remains attached by its broad ligaments alone. A gauze pack is then put into the pelvis behind the uterus and the cervix is thrust back against it, while the anterior uterine wall is caught with museau forceps step by step and drawn down through the anterior incision until the fundus appears at the vaginal outlet.

The next step is to bisect the uterus from above downward; this is not attended with any serious bleeding. The surgeon now proceeds to remove the uterus in the following manner: one-half of the body of the uterus is caught by a stout museau forceps, while the other half is allowed to retract within the vagina; then, catching the cervix of the same side with the forceps, the body is completely severed from the cervix by dividing from within outward. As soon as the division is completed, the uterine vessels are clamped in the exposed

cellular tissue, and the detached body is now pulled further out and the round ligament clamped, and lastly the uterine cornu. In this way one quadrant of the uterus is removed. The body of the uterus on the opposite side is next removed in like manner. Ligatures are then applied in place of the clamps. The ovaries and tubes are removed after the body of the uterus. It is, as a rule, much easier to remove the ovaries and tubes in this way, when there is more room secured, than to take them out with the body of the uterus. The removal of the body of the uterus in this way affords so much room that it now becomes an easy matter to take out the cervix on the side which is least implicated, under all circumstances giving it the widest possible berth, and keeping the rigid catheterized ureter under touch all the time during the enucleation.

The steps of the operation as thus far described, which have been rapidly and easily conducted, may be looked upon as more or less preliminary; three-quarters of the uterus has been removed, and the remaining quadrant, that half of the cervix which is on the side where the infiltration of the broad ligament is most marked, now remains to be extirpated also, completing the operation.

In reality so important is this last step that the operation may at this point be looked upon as only having just begun. All the skill of the operator must be concentrated upon this step—upon securing the most thorough, wide extirpation of this remaining piece. In order to do this as effectively as possible, the extirpation of the three portions indicated has afforded a maximum space, and the operator is not now embarrassed by the presence of the uterine body in the pelvis. He holds in the grasp of his forceps a small nodule, one-half of the cervix, and his desire is to get it out with perfect control of the vessels, giving it the widest possible berth. This may be done in some cases by ligature, but will be better done in other cases by cautery clamps such as have been devised by Dr. Skene, of Brooklyn, or by igniextirpation, as extensively practised by Mackenrodt, of Berlin. If the ureter lies clearly beyond the diseased area and is unaffected, it may be dissected out and left intact; in many of these cases, however, the operator must not hesitate a moment in cutting off the ureter above the diseased area and proceeding with the wide enucleation of the nodule as if the ureter did not exist. After the enucleation is over, the ureter may then be readily turned into the denuded bladder and stitched there (uretero-cysto-neostomy). The anterior and posterior peritoneal surfaces are then drawn down and attached to the vagina, and are again sutured together in the middle line, so as to leave but two small openings up into the pelvis, which are loosely stuffed with gauze.

While the nine cases operated upon are still too recent to be offered in evidence, there can be no doubt whatever that this plan of operating, like any other plan which gives the disease a wider berth, must give a better percentage of permanent recoveries.

Vaginal Hysterectomy at Term for Cancer; Living Child.—Jordan¹⁰ reports a case of "vaginal Cesarean section." The woman was a IXpara, 38 years old, at full term. A cauliflower tumor originating from the cervix formed a complete obstruction to delivery and occupied the whole vagina. Excochleation of the cancerous masses and opening of the anterior and posterior utero-vaginal fornix, splitting of the cervix both anteriorly and posteriorly beyond the internal os, version and extraction of a living child, removal of the placenta, and vaginal hysterectomy, completed the operation.

Parovarian Cyst.—Kleinwächter¹⁰ reports a case of parovarian cyst in a multipara, 27 years old, who about eight days post partum was seized with fever and abdominal pain. The author first saw the case three and one-half months later and then found a large, fluctuating abdominal tumor extending from the umbilicus into the pelvis. The tumor, which contained a clear yellowish fluid, was incised and drained through the vagina. It rapidly decreased in size and the patient was discharged five weeks later, cured. The diagnosis of parovarian cyst was made from the character of the fluid, its intraligamentous situation, and from its being a unilocular cyst. The case shows that it is unnecessary to extirpate these cysts, as incision and drainage is generally sufficient.

Cyst-adenoma of the Breast.—Roloff¹² reports cases of chronic mastitis and cyst-adenoma mammae. The latter are the results of a chronic inflammation and should not be classed as true tumors. The author, however, reports two cases of chronic mammary inflammation which developed into cancer.

Elephantiasis Vulvæ.—Lauvers¹³ describes a case of elephantiasis of the vulva in a woman 35 years old, which had existed for nearly twenty-five years and had assumed huge proportions. The labia were hanging below the knees, and walking was possible only with the legs widely separated. Lauvers removed the whole mass, which weighed over twenty-eight pounds. Recovery.

Retroperitoneal Sarcoma.—J. Dutton Steele,³³ after reviewing the literature, comes to the following conclusions:

1. Retroperitoneal sarcomata, while rare, occur with sufficient frequency to warrant more attention from the standpoint of diagnosis than they have heretofore received.

2. *Etiology.*—Males appear to be somewhat more predisposed to the affection than females (60 to 40 per cent). It usually occurs later than sarcoma elsewhere.

3. *Course.*—Grows quickly, the average duration being about eight months.

4. *Pathology.*—It generally originates in the lumbar region (57 per cent). The next most frequent place is about the attachment of the mesentery. The tumor is lobulated and is capsulated, and is hard and firm in its earlier stages, but is very prone to degenerate. Degenerative processes are oftenest hemorrhagic in character, but may be puriform or myxomatous. In a third of the cases the softening progresses to

such a degree that the growth assumes a cystic character. Metastases are not common; when they do occur they are oftenest in the liver. In the majority of cases the growth involves the intestines, and the softened central area may rupture into the gastro-intestinal tract or the peritoneal cavity.

5. *Symptomatology*.—The onset is insidious. The earliest manifestations of the presence of such a growth are functional disturbances in the digestive tract. The first symptoms that are at all characteristic are those of pressure upon the lumbar sacral nerves, and upon the venous supply of the lower extremities, manifested by neuralgic pains or edema of the feet and legs. The symptoms of the latter are cachexia and neuralgic pains in the lumbar region, often complete or incomplete obstruction of the small intestine, and interference with the various organs upon which the growth presses.

6. *Physical Signs*.—In the earlier stages the physical examination is uncertain and difficult; in the middle stages the colon is pushed up and lies upon the anterior surface of the tumor. In the lateral growths the small intestine is pushed to the opposite side of the abdomen and lies in an irregular circle around those occupying the median position. This arrangement of the bowel is very characteristic of all retroperitoneal growths. The tumor may fluctuate and may move with respiration or be movable by palpation.

7. *Diagnosis*.—Beyond determining the retroperitoneal nature of the growth and its malignant character, the diagnosis is very difficult. The pressure symptoms and evidences of intestinal obstruction are the most valuable differential points. It is often impossible to distinguish the growths of the retroperitoneal space from those of the kidney and suprarenal capsules by physical examination alone. The difficulty of diagnosis is, of course, increased in the latter stages of the disease, when the growth fills the abdominal cavity more or less entirely, when it may simulate almost any of the larger abdominal tumors. An exploratory incision is the only sure method of determining the position and character of tumors that have been shown to be situated behind the peritoneum. Surgical interference offers the only opportunity for prolonging the patient's life.

Uterine Fibroids in Sisters.—O. Engstrom⁸⁰ has observed 530 cases of uterine fibroids. Among these two or three sisters showed such lesions in 13 families. The author does not believe that this is accidental.

Adenomyomata of the Uterus.—The main points in an article on this subject, written by J. C. Hirst,⁸¹ are as follows:

1. In the uterus of an adult were found embryonic epithelial inclusions from the mucous membrane of the uterine body (Müller's duct), situated in the peripheral subserous layers of the myometrium.

2. Isolated glands and cysts, included in the uterine walls and originating from the mucous membrane, are provided with a cystogenic tissue sheath, but not invariably.

3. This cystogenic tissue is found accompanying remains of the Wolffian body only when adenomatous proliferation is present in them; and this applies both when it occurs at the normal site of the paroöphoron and in transposed portions of it.

4. Adenomata with glands and cysts in scattered arrangement are to be considered as from the mucous membrane as soon as they are provided with cystogenic tissue sheaths around the glands.

5. The epithelial ducts in the uterine and tubal wall, which have heretofore been characterized as aberrant canals from the Wolffian body, have not been proved as such and are of uncharacteristic anatomical structure. For this diagnosis we must have specific figures of the paroöphoron or connection with Gaertner's duct.

6. We have shown that the formation of subserous adenomyomata from these incorporated glands of the uterine mucous membrane is possible.

Surgical Treatment of Complicated Uterine Fibroids.—It is now four years and a half since Howard Kelly⁶⁶ described a new method of performing a supravaginal myomectomy for fibroid tumors of the uterus. This new method of enucleation was by means of a continuous incision through first the ovarian, then the uterine vessels of one side, down under the tumor, cutting across the cervix, and catching the uterine vessels of the opposite side as they are exposed, and up the broad ligament to the round ligament, and last of all the corresponding ovarian vessels. By means of this rapid plan of enucleation the tumor and the part of the uterus involved with it are rolled out and all the vessels controlled within three or four minutes. Complications on the part of the tubes and ovaries, in the form of adhesions, hydrosalpinx, and pelvic abscesses, are also more easily dealt with under this plan of enucleation than under any other. It is always easier to attack an inflamed tube and an ovary from the front of the broad ligament which is opened up in this way, than to attack the same inflamed structure from the posterior part of the pelvis before enucleating the tumor.

The large experience which Kelly has gained since publishing the above paper referred to has only served to confirm his conviction that no other plan of operating can rival this one in simplicity, in rapidity, and in affording complete control of the complications referred to.

While this plan is the best for the vast majority of cases, occasionally a complicated case turns up in which it can only be applied with difficulty. Kelly recalls several cases which have recently passed through his hands where neither the common method of performing hysteromyomectomy—that of tying down on both sides to and including the uterine vessels, and then amputating the cervix—nor his own method of the continuous transverse incision epitomized above could be applied without great difficulty and considerable risk to the patient.

He says: The first case in which I found it necessary to

make a radical departure in the method of enucleation belonged to the group of cervical myomata. In this instance there was no cervix to be felt by the vagina, and on opening the abdomen the bladder was found raised half-way up the umbilicus by an ovoid tumor choking the pelvis, with its long axis vertical. The body of the uterus, containing a few small nodules, sat high up in the abdomen above the umbilicus like a cap on top of this tumor, and on the right and on the left sides the displaced uterine and ovarian vessels were spread out in a network. I began the enucleation by trying to tie off these vessels wherever I could catch them on the left side. There was a great deal of hemorrhage from the surface of the tumor, and as soon as I commenced to detach the ligated vessels and to push them down the hemorrhage increased. It was evident that the patient, who was already feeble and anemic, could not survive the operation if there was to be any additional considerable loss of blood. I then at once resorted to the following plan, which promptly overcame the difficulty and speedily terminated the operation without further loss of blood: I took two long-jawed pedicle forceps and controlled all the vessels on each side of the uterus on top of the tumor by thrusting one of the open jaws of the forceps through the capsule of the tumor on one side at about the level of the round ligament from the front of the broad ligament until the point appeared on the posterior surface of the tumor behind the broad ligament; I then clamped the forceps powerfully down on the uterine and ovarian vessels, entirely controlling the circulation. Both sides were treated in this way. I then took a long-bladed knife, and, grasping each uterine cornu with stout, short-toothed museau forceps and pulling in opposite directions, I bisected the uterus and cut on down into the tumor as far as the vesical peritoneum, which was freed and pushed down, when the tumor was completely bisected. The next steps were the enucleation of the left and the right halves of the tumor. Grasping the left half of the tumor at a convenient point and pulling it away from its bed with a pair of museau forceps, it was rapidly enucleated from its uterine bed by means of a blunt crenated spatula, which I always use in the enucleation of myomata. The right half was then enucleated in the same way. All these steps were carried out without a particle of hemorrhage, in remarkable contrast to the beginning of the operation. With the enucleation of the large cervical tumor the tissues surrounding it collapsed, and the uterine artery was easily reached and tied at a selected point below the body of the uterus, and all the difficulties of the situation vanished and the case became a simple one. The two halves of the uterus were enucleated separately and the bed of the tumor closed by buried sutures, and the vesical peritoneum drawn over and attached to the posterior peritoneum concealing the wound, and the operation finished. The enucleation of the bisected uterine body may be done after the removal of the tumor in one of two ways—either by tying the

ovarian vessels, now easily reached, and the round ligaments, and lastly the uterine vessels, and then amputating, or by severing first one then the other half of the uterus from the cervix below, cutting from within outward, from the centre of the cervix toward the broad ligament, and so exposing and catching the uterine vessels, after which they are divided and each half is pulled up in turn by its cervical extremity and the round ligaments of the ovarian vessels tied in order. The direction of the enucleation in this case is from below up, the reverse of the direction ordinarily taken; the extirpation in this way is facilitated by the sagittal bisection of the uterus. The patient made an excellent, uninterrupted recovery and has returned to her home and duties in the country.

I would urge this plan of dealing with fibroid tumors of large size occupying the lower uterine segment, and elevating the uterine as well as the ovarian vessels, and choking the pelvis; in these cases the vessels cannot be tied in mass, but require numerous separate ligatures, and the operator is constantly embarrassed by hemorrhage if the ordinary plan is pursued.

A case in which a still different plan of operating was found necessary was that of a fibroid tumor filling the pelvis and reaching as high as the umbilicus. The patient, when put on the table, had a rapid, small pulse which speedily ran up to 140.

I opened the abdomen, and, after releasing some omental adhesions, found the large tumor firmly fixed in front of the vertebral column behind the umbilicus by extensive dense adhesions. The colon was so intimately attached to it that it soon became evident, as I tried to detach it, that a continued dissection would necessitate an extensive resection of the bowel. I then resorted to a plan successfully adopted in a previous case, that of leaving a thin layer of the tumor upon the bowel—that is, of sacrificing the tumor for the sake of the bowel. As soon, however, as I cut into the tumor it began to bleed freely, and I did not dare to go ahead on account of the condition of the patient. I then turned to the lower pelvic pole of the tumor, hoping to be able to free it by tying off the vessels from above downward and amputating the cervix; I found it attached to the whole anterior surface of the uterus above the cervix, pushing the fundus of the uterus down to the pelvic floor out of reach. I was able to place two clamps on the tops of the broad ligaments, controlling the ovarian vessels, but this was not a necessary step in the following procedure then adopted, which met the complications in a satisfactory manner. The cervix, which could be felt at the vesical reflexion, was caught by stout, short-toothed museau forceps and pulled up within reach; the vesical peritoneum was detached and pulled down, exposing more of the cervix, which was caught with a second pair of forceps. A knife was then plunged through the cervix in an antero-posterior direction between the two pairs of forceps, and the cervix was cautiously divided from side to side (that is to say, coronally or

transversely) by pulling the divided cervix apart. The cellular tissue to the left of the cervix was first exposed, and the uterine vessels, not yet seen, clamped with a short, stout forceps; the uterine vessels on the right side were next controlled in the same way.

When these important vascular trunks were thus secured, the upper forceps was forcibly used to drag up the tumor and uterine body, rotating them on a transverse axis, exposing first the round ligaments and then the ovarian vessels of the left and the right sides, respectively; these structures were clamped and the whole mass disconnected from its pelvic attachments. The tumor now only remained adherent by the dense adhesions at its upper pole. The next step was the rupture of an enormous abscess lying behind it and extending from the centre of the tumor into a sac bordered posteriorly by the lumbar vertebræ and above by the mesocolon and discharging through a large opening into the transverse colon. The tumor now rolled out, being enucleated from behind forward without added injury of the bowel, other than was rendered necessary by the opening into its lumen. The contaminated abdominal cavity and the abscess cavity, containing at least a litre of thick yellow pus, were cleansed, the opening in the bowel sutured, and the long abdominal wound closed, leaving a large iodoform gauze drain about the umbilicus into the remainder of the sac under the colon.

The patient has made an excellent recovery, with a small, rapidly-closing fistulous track.

This type of operation is, I think, the very best that can be adopted for those cases in which there are dense adhesions to the upper pole of the tumor which cannot be dealt with without great risk by attacking them in a direction from before backward.

I have tried the first plan of operating, by bisecting the fibroid uterus, in eight cases in all; it has so happened that several complicated cases of tumor developed in the cervical region have recently come into my hands. In the other cases I simply made the enucleation in this fashion in order to demonstrate its feasibility. The continuous transverse incision must always remain the operation of elective choice.

The second plan of operation has been followed in but one case.

Congenital Cystic Degeneration of Glandular Organs.—

In a paper on this subject A. Couvelaire³⁶ states that such degeneration may be present in all glandular organs, but affects most often the liver and the kidneys. In the kidneys the cysts are easily visible; in the liver they are often microscopic, the only obvious change being a hypertrophy. Labor is usually premature, and if the cystic masses are large, dystocia may be caused. The fetus sometimes dies from asphyxia on account of the mechanical interference with the movements of the diaphragm. Congenital deformities are frequently associated with cystic degeneration. Several children in a

family are often affected with such cystic disease. The occurrence of this degeneration in both liver and kidneys indicates, not metastasis, but a similar process in these organs. This process consists in an exuberant but systematized production of epithelial cells lining the excretory canals of the glands, and in a corresponding proliferation of the connective tissue surrounding these cells.

Calcium Chloride as a Hemostatic.—J. G. Hagadorn³³ advocates the use of calcium chloride to stop hemorrhage occurring at the time of menopause. He has used it in two cases with good results.

Ovariotomy per Anum.—Peters¹ reports a case of prolapse of the rectum and a large ovarian cyst in a patient 37 years old whose general condition was extremely bad. The operation consisted in a liberal opening of Douglas' cul-de-sac and temporary ligation of the rectum. The tumor, which was a unilocular cyst-adenoma, was pulled down and removed. The removal of the prolapse completed the operation. The recovery was smooth and without a rise of temperature.

Pyosalpinx removed during Early Puerperium.—R. Milne Murray²⁹ reports a case in which he removed a pyosalpinx and ovary by laparotomy in the second day of puerperium. The patient made a good recovery.

Torsion of Salpingitis.—F. Legueu⁴⁰ has observed this accident in three cases. One of the two which form the basis of his paper occurred in a woman 33 years old, previously healthy. She had had three children, the last five years before. The day before admission to the Broca Hospital her menstruation appeared as usual, but accompanied by severe abdominal pain, especially on the right side. The pain increased; was accompanied by vomiting of stomach contents, then of bile; menstruation became profuse and her temperature rose to 102°. An ill-defined, tender tumor was felt to the right of the umbilicus, its upper border being curved, its lower portion extending into the pelvic cavity. By vaginal examination it was found that this tumor was independent of the uterus. All symptoms subsided and no operation was performed until the sixth day. At that time it was found that the tumor was not an ovarian cyst, but a hydrosalpinx which had undergone a half-turn upon its pedicle. Recovery followed its removal. In the other case the pedicle was twisted one and a half times, yet no evidences of interference with circulation were found. The patient had merely experienced sharp pain in the right side of the abdomen, low down, for two years during menstruation.

Intestinal Obstruction due to Persistent Meckel's Diverticulum.—C. A. Morton³⁴ reports a case of intestinal obstruction due to a persistent Meckel's diverticulum. The diverticulum passed from its usual origin on the ileum to the umbilicus; it began as a funnel-shaped projection from the ileum of an inch and a half in length, and terminated in a round cord attached to the umbilicus. The symptoms of which this patient complained were more like those of appen-

ditis, except that the abdominal distension and evidently serious condition made one think that if it had been an appendicitis it had become complicated with a general peritonitis. The patient's condition was such that it was clear that an immediate operation should be done. On opening the abdomen it was found that a loop of the small intestine had become strangulated under the diverticulum; this was freed while examining the gut. The diverticulum was removed and the patient made an uneventful recovery.

Intestinal Obstruction after Intra-abdominal Operations.—Lauwers⁴⁶ has seen 6 such cases, 4 of which he reports. He remarks that in operating upon such cases the gynecologist should not go in search of the cecum, to determine whether it is empty or distended, but should look at once at the site of the previous operation, where the cause of obstruction will be found.

Treatment of Amenorrhea.—P. J. Henrotay⁴⁶ suggests the use of a mixture of glycero-phosphate of iron in normal salt solution by hypodermatoclysis in cases of amenorrhea in anemic subjects. He has tried the method successfully in one case.

Castration for Absence of Vagina and Rudimentary Uterus.—Eberlein² publishes a case under the above title. The woman, 23 years old, married five years, had suffered since her eighteenth year from vicarious menstruation, manifesting itself by periodical nose-bleeding and other discomforts. There was complete absence of vagina and inability to cohabit. The rudimentary uterus was about the size of a walnut. Extirpation of uterus and adnexa resulted in complete cure.

Atresia Vaginæ.—W. E. Fothergill³⁰ reports a case of congenital atresia. The patient had had pelvic pain and discomfort once a month. The external genitals are normal; there is no visible or palpable opening in the hymen. On rectal examination a firm body can be felt having the position, form, and size of the cervix uteri. Careful examination failed to reveal the presence of a uterine body, tubes, or ovaries. The presence of ovaries may, however, be surmised from some of the details mentioned above and from the fact that the patient is engaged to be married.

Retention of Menstrual Blood from Atresia of the Vagina.—C. J. Cullingworth³⁰ reports four cases of retention of menstrual blood. In the first instance the woman was 21 years old and had never had any menstrual discharge. Since her twentieth year she had been troubled with "bearing-down pains," lasting five or six days, at each menstrual period, and from an abdominal tumor which was gradually increasing in size. On examination there was found an exceedingly tense membrane between the labia minora. This membrane was incised and three pints of altered blood came away.

The second case was that of an imbecile 14 years old. In this instance the stoppage was due to a plane of tissue extending across the lower part of the vagina. After this tissue had

been incised and the retained blood removed, an attempt was made to keep the vagina open by glass plugs.

The third case was that of a girl, 20 years old, who had never had any trouble except amenorrhea from atresia. In this case the atresia was just above the hymen.

The last case, that of a girl aged 20 years, had complained of severe pains at each menstrual period since she was 15. In this case the atresia was at the os internum.

The Influence of Menstruation upon the Functions of the Stomach.—According to Kuttner¹⁰ menstruation reduces the secretion of HCl, and at times may cause complete an-acidity of the gastric juice. Elsner investigated this statement in 14 cases, with the following results: in 5 cases no change; in 3 cases subacidity; in 6 cases hyperacidity. Normal menstruation does not alter the secretion of HCl. Excessive menstruation is accompanied by hyperacidity from an increased irritability of the central nervous system. Menorrhagia may result in subacidity. The motor functions of the stomach are not affected by menstruation.

Hydrogen Peroxide for Uterine Hemorrhage.—Platon¹¹ advocates the use of intrauterine injections of hydrogen peroxide for uterine hemorrhages. He cites two illustrative cases in which he obtained very favorable results. The first was a case of hemorrhagic metritis which had yielded very slowly to treatment, and the patient was anxious for a speedy cure, which was obtained by this method. The second, an instance of metrorrhagia at the approach of the menopause, was cured by three applications, although ergot, hot vaginal douches, and tamponing with perchloride of iron had failed.

Stypticin.—According to Falk¹² the action of stypticin is due neither to its causing uterine contraction nor constriction of the blood vessels. The drug controls hemorrhage through its sedative effect upon the circulation and the heart. It retards the heart's action and decreases the force of the blood current. Stypticin is useful in menorrhagia without pathological changes, in anemic young women, and during the climacteric period. In myomata, endometritis, and disease of the adnexa the drug is rarely of benefit. Subcutaneous injections are more efficacious than internal administrations.

Endometritis Dolorosa.—Sneguireff¹³ reports some interesting cases of this not very rare disease, which usually consists of pathological changes in the mucous membrane of the fundus near the Fallopian tubes or surrounding the internal os. The points of pain are pathognomonic; these correspond to the first and second nerve roots arising from the lumbar plexus, the plexus hypogastricus solaris and renalis. The prognosis is usually good and the treatment effective. The therapy consists in the application of leeches to the coccygeal region, dilatation, uterine tamponade and curettement.

Uterine Tuberculosis.—Frank¹⁴ was consulted by a virgin, 21 years old, who asked his advice because of irregular menstruation. A pelvic examination revealed a new growth

situated upon the cervix and strikingly resembling a cancrroid. The growth had caused no symptom or discomfort, and the patient was not aware of its presence. Microscopical examination of an excised piece showed it to be tubercular in character. The uterus and adnexa were apparently normal and not involved, therefore only the cervix was removed. The amputated cervix contained numerous tubercles, but neither bacilli nor cheesy degeneration were found. As the patient had tuberculous deposits in other parts of the body, the case was probably not a primary tuberculosis of the uterus.

Ureteral Calculus.—Howard A. Kelly³¹ reports a case of ureteral calculus which has the following points of interest: The exact location and size of a small stone lodged in the ureter behind the vesical orifice were determined by vaginal palpation. The patient, having emptied her bladder, was placed in the dorsal position, and the ureter was cocaineized by injecting about six cubic centimetres of the one per cent cocaine solution directly into the ureter and into the surrounding tissues by means of the long hypodermatic needle thrust through the vaginal wall into the tender spot felt per vaginam. It would easily be possible, using cocaine in this way, to cut into the ureter through the vagina and remove a stone and sew up the wound without resorting to general anesthesia. The interior of the ureter may be readily anesthetized by injecting eucaïne into it by means of a long, slender nozzle attached to a small syringe. In this case a wax-tipped bougie demonstrated the presence of a calculus in the ureter for the first time. The catheter was passed up to the renal pelvis, and sixteen cubic centimetres of urine escaped, showing the presence of a hydronephrosis of a low grade. It also broke off a small portion of the stone. By means of the ureteral dilator the orifice was enlarged to the exact size of the stone, which was thus enabled to escape within twenty-four hours. Kelly states that he is not aware that a ureteral calculus has ever been assisted to escape in this way before. The honeycombed structure of the stone in this case suggests the possibility of crushing it by making pressure through the vaginal walls. The wax-tipped catheters are ordinary renal catheters, the points of which are dipped into melted dental wax and olive oil, 2:1. A little drop clings to the end of the catheter and cools with a glistening, unbroken surface which, examined by the lens, is found perfectly smooth throughout. By coating the catheter with wax at intervals from the tip down, it would be possible to determine the exact location of the calculus, and so avoid introducing a catheter several times to locate the stone.

Abnormal Ureters.—Benkiser¹⁶ observed a case in which a ureter terminated externally below the orifice of the urethra. In another case the patient presented a small urinary fistula immediately below the urethra. A careful examination showed that the woman possessed a supernumerary ureter coming from the left kidney, while the other two ureters were normally implanted. The abnormal organ was obliterated

through a uretero-cystotomy and the incontinence was cured. The author reports 26 cases out of the current literature. Twelve were operated and nine cured.

Olshausen¹⁶ also reports two cases with abnormal ureters. One was a girl 10 years old, who since birth was affected with incontinence of urine. In this case the ureter, instead of terminating in the bladder, opened adjacent to the urethral orifice. Olshausen's second case had a third ureter, which also terminated near the urethral orifice, and greatly annoyed the patient, a girl 15 years old, by the continuous discharge of urine. After five operations the opening was successfully closed and the patient continued well.

Thiol in Female Diseases.—Zander^{*} publishes the results obtained from the employment of thiol in Kossmann's clinic. The remedy was used in 100 cases of inflammatory conditions of the genital tract, in simple hyperemia and peritoneal irritation. It was used in the form of thiol liquidum and thiol glycerin. The latter consists of thiol siccatum 12 parts, glycerin 88 parts. Cotton tampons thoroughly impregnated with thiol were left in position for three days. The drug has the advantages over ichthyol that it is almost free from odor and its stains are easily removed from linen.

Uterine Atrophy after Castration.—Beuttner^{*} and Jentzer publish a series of interesting investigations on 14 castrated cows, 13 rabbits, and 4 dogs. In every case marked atrophy of the uterus was found. The administration of ovarian extract had no influence upon the resulting atrophy.

The Toxin of the Gonococcus.—V. J. Maslovsky¹² has conducted a series of experiments with gonococci and the toxin of the gonococcus in regard to their action upon the peritoneum and uterine mucosa. As a result of these researches he concludes that the effect of cultures of the gonococcus upon the animal organism is due, not to the development of the gonococcus, but to the influence of a toxin which it produces. This toxin causes a general and a local reaction. The general reaction is shown by a rise of temperature, a loss of weight, and sometimes death of the animal. The local action—inflammation and suppuration—occurs in subcutaneous cellular tissue, as well as in the anterior chamber of the eye, the peritoneum, and the uterine mucosa. This action of the toxin may explain the increase in size of a pyosalpinx, the pus within being sterile. The gonorrheal infection takes place; the ends of the tube become closed; the gonococci, after causing suppuration, are carried off by leucocytes or die, forming toxins. This toxin in the tube continues to cause formation of pus, although living germs are absent. It may also cause localized peritonitis about the tube.

Cystocele of the Linea Alba.—The case reported by Garulanos¹² is unique in medical literature. A hernial sac, situated immediately above the symphysis, contained a diverticulum of the bladder. A congenital weakness of the linea alba and repeated pregnancies in quick succession were given as the

immediate causes of this rare phenomenon. When seen the patient had marked symptoms of strangulation. Extirpation of the diverticulum resulted in complete cure.

The Curative Influence of Marriage upon Hysteria and Anemia.—According to Meinert,¹⁷ hysteria is a disease of the mind, and the advice of marriage might well be compared to the recommendation of a private sanitarium, and much depends on whether the patient is properly or improperly treated. While in former years doctors were positive of the curative effect of marriage, most are now quite sceptical. It is, however, a fact that while many become worse, a considerable number are and remain cured. In anemia the prognosis depends upon pregnancy; in other words, patients improve when they conceive, or, as Meinert aptly states, "with the growth of her waist measure." The enlarging uterus pushes the intestines upward, widens the aperture of the thorax, and thus cures the chlorotic enteroptosis. It is, however, most important that the increase thus gained is permanently retained and not lost through tight lacing and close-fitting garments or waist bands.

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DISEASES OF CHILDREN.

Athletics in Public Schools.—J. Gardner Smith¹ writes that the tendency in schools is toward too much mental strain and nervous concentration and not enough pure recreation and relaxation. Physical work at least should aim primarily at the improvement of the health and functional activity of the body. Physical training wisely regulated tends to the development of character. It has been suggested that the hour from

3 to 4 each day be given for gymnastic exercise under the supervision of special instructors. Gymnasia should be in the upper part of the building and perfectly ventilated. Teachers should know more of physiology and be able to teach gymnastic and athletic exercises, under careful supervision, more intelligently than at present. The exercises should be so varied as to interest the pupil in such a way that he will look upon them as a pleasure and recreation.

Alveolar Catarrh in Children.—J. C. Gittings² and Charles H. Judson report 5 cases seen at the Children's Hospital Dispensary, Philadelphia. They were among the cases of pneumonia, and seemed to differ from simple bronchitis on the one hand and broncho-pneumonia on the other. They were all "walking" cases. The process was essentially subacute, running a course of from six to eight weeks. In three of these cases—although one was complicated by general bronchitis and two by congestion of the lobes—the apices presented signs of alveolar catarrh which persisted long after the more acute processes in other parts of the lung had disappeared, and was still accompanied by slight fever, anorexia, and other constitutional symptoms. In the remaining 2 cases the process was subacute from the start. On the other hand, these cases differed from tubercular infection in the absence of hemoptysis, night sweats, and marked wasting, and in their ultimate recovery within a short time without the benefits of improved hygienic or climatic conditions. The authors wish to emphasize the fact that the clinical signs of alveolar catarrh might be readily overlooked unless careful exploration of the lungs were made in every case.

Benefits of Medical School Inspection.—Henry Graham MacAdam¹ believes that though the direct object of medical school inspection is the prevention of the spread of disease, the ultimate effect will be to prevent the origination of disease through education of the mass of the people. The parents will become alive to the importance of hygiene—of pure air, good water, cleanly surroundings, and cleanly habits. In this way, ultimately, we raise the standard of health in the entire community by instruction of the people in the modes of right living.

Cardiac Diseases in Infancy and Childhood.—John Zahorsky¹ believes that diseases of the heart are often overlooked and the symptoms attributed to other causes. Pain in the precordial region is not uncommon in heart disease in children, but may occur with other ailments, especially in amygdalitis. At times the pain in endocarditis is encountered in the epigastrium. On rare occasions the pain is agonizing and is accompanied with anxiety, as in angina pectoris. A pericarditis with effusion can give rise to a diagnosis of tuberculosis, since the distended pericardium causes dulness on percussion posteriorly, and the compression of the lung produces a condition that simulates consolidation. The sign of Pins—the disappearance of signs of consolidation when the patient is put in the knee-chest position—is valuable in the differential diagnosis. Ane-mic murmurs are uncommon in childhood, but occasionally are

found. In many cases it is extremely difficult to tell whether a given murmur is due to anemia or to an organic change. It is wisest to doubt the existence of an accidental murmur, unless marked anemia is present. Malnutrition in young children frequently depends upon chronic valvular disease, and in all forms of malnutrition the heart should be repeatedly examined as to its outline and activity. Various erythematous eruptions are frequently associated with disease of the heart. The purpuric spots of malignant endocarditis are instances of skin lesions. In severe mitral disease the excessive breadth of the base of the heart is readily made out, and indicates hypertrophy and dilatation of the left auricle. This is a valuable sign and is usually overlooked in physical examinations. Disease of the aortic valves is more rare in childhood. Visible pulsation in a child or infant, unless the emaciation is extreme, is indicative of hypertrophy. The accentuated second sound is unreliable in infants, but in older children becomes more important. It is difficult to determine enlargement of the heart in these patients; on account of the varying obliquity, the breadth of cardiac relative dulness is very unreliable. Brunton draws attention to the common error of diagnosing malaria for endocarditis, and adds that "if you find a temperature which runs a course very much like quotidian ague, in a case where you can find no malaria and where you can find no evidence of suppuration, it is very likely to be endocarditis."

Cerebellar Disease in Early Childhood. Symptomatology of.—Hahn³ reports the case of a four-month-old girl, of tuberculous family, who was brought under observation because she made persistent rotary movements of the head. There was a very mild opisthotonos, and convulsions occurred only once after lumbar puncture which withdrew only three cubic centimetres of clear fluid containing no tubercle bacilli. At the autopsy a pea-sized, solitary tubercle was found in the vermiform process of the cerebellum, and a mild tuberculous meningitis at the base of the brain.

Congenital Lateral Curvature of the Spine.—Henry Ling Taylor² reports two cases in infants under 1 year, observed at the Hospital for Ruptured and Crippled. The first was a rachitic girl of 9 months; the convexity of the curve was to the left in the dorsal region, and the mother stated that the deformity was first noticed at 3 months. The second was a girl of 3 months, and the curvature had been noticed only two weeks. This curvature also was to the left, but somewhat lower. There was no evidence of rickets, and the deformity was probably congenital and due to some malposition *in utero*. The prognosis in these cases is serious; if untreated, the deformity usually increases and may become very severe. Manual correction should be employed several times daily, and the child carried on the arm of the side toward which the spine bends. If the baby's spine curves to the left, it should be carried on the mother's left arm, and *vice versa*. A small, firm hair cushion should be placed under the baby's arm of the

convex side. If necessary the child may be strapped to a frame with correcting pads for a time and given daily massage. The most active treatment should be instituted when the child is small, as it will then be most effective.

Day-Terrors (Pavor Diurnus) in Children.—George F. Still⁴ reports several cases in which children are subject to attacks of terror or hallucination during the day—attacks which lasted in one case as long as fifteen minutes, and for which no cause could be found. The relation of these attacks to night-terrors is close, for in four cases out of the five night-terrors were or had been present. But the difference between them is not merely one of time of occurrence; there is the more important difference that while the characteristic of the night-terror is its onset during sleep, the characteristic of the day-terror is its occurrence in the waking condition. A nervous, excitable child, in the midst of his play or while sitting quietly in a room with other people, suddenly, without any apparent cause, begins to scream and look terrified. Sometimes he says that some imaginary person is coming after him or that he hears something which frightens him, etc. No coaxing or attempts to soothe seem to have any effect in pacifying him. Sometimes he rushes to his mother for protection, or in some cases shows a definite dread of the mother or of the nurse, of whom he is usually perhaps inordinately fond. The etiology of day-terrors is as hard to determine as that of night-terrors. The children are always of excitable nervous temperament. The family history of rheumatism in all the author's cases seems to point in the same direction, for in seeing a large number of children one is struck with the sensitive, nervous temperament of those who come from rheumatic families. Nearly all show one or other of the minor functional neuroses; it may be some habit-spasm or nocturnal enuresis, or it may be recurring headaches or "nervous diarrhea," or it may be simply undue excitability. The family history of rheumatism, therefore, is probably more than a mere accident; and it is interesting to note that in night-terrors Dr. Goodhart found a family history of rheumatism in 19 out of 37 cases, and Dr. Graham Little found valvular murmurs in the heart in 17 out of 30 cases. In one case reported by the author the child's father was epileptic, one uncle was "weak-minded," and the mother's aunt was in a lunatic asylum. There is usually no apparent objective determining cause for the attacks, but some of the children are exceedingly timid even in the intervals between attacks. The fall of an umbrella stand or the smoke of a train has caused quite disproportionate fear. It may be that sometimes, at least, an objective cause is present, which may be so slight as to be overlooked by the parents, but which is magnified by a fanciful child into something terrific. As to the relation of night and day terrors, the author thinks it difficult to doubt the identity, because of the repeated association of the two conditions clinically; the fact that day-terrors may replace night-terrors, or *vice versa*; and the close similarity of

the attacks, which in both consist of a sudden transient terror, with the presence sometimes of hallucinations or delusions. Although day-terrors are probably not to be regarded as masked epilepsy, it seems certain that they are to this extent allied to epilepsy, that they are a form of paroxysmal neurosis; one might sum up one's impressions of *pavor diurnus* by saying that it is a paroxysmal psycho-neurosis allied to, but not identical with, epilepsy on the one hand and hysteria and insanity on the other. The immediate prognosis would seem to be good, day-terrors being easily diminished by treatment; but their significance as a danger signal of tendencies to more serious neuroses in later life is probably graver than that of night-terrors, for their occurrence no doubt means that the nervous instability which favors night-terrors is present in larger degree. The most important part of the treatment is the cure of the exciting cause. Chronic intestinal catarrh calls for rigid dieting, particularly the exclusion of potatoes, pastry, and sugar, and the administration of an alkali. Potassium citrate is the drug which the author has found most useful, and may be given with iron and compound decoction of aloes. Threadworms or other causes of irritation must be removed by suitable treatment, and, as intestinal disorders are not likely to be cured offhand, sedatives may be used as well. The good effect of bromides is almost immediate, and when given with belladonna they produce a very rapid diminution in the number and intensity of the attacks. In school and in play the child must be kept as far as possible from all excitement and mental strain. Such children should never be frightened, whether in punishment or in jest.

Depression of the Neck of the Femur in Early Life, including Fracture of the Neck of the Femur, Separation of the Epiphysis, and Simple Coxa Vara.—Royal Whitman^o reports 18 cases of fracture of the neck of the femur in children, the diagnosis since 1897 having been confirmed by Röntgen pictures. The accidents causing the injury were falls from windows, down the stairs, injury at football, or being run over. The symptoms are the following: A child, previously in perfect health, after an accident of the nature indicated, presents an actual shortening of the limb of one-half to three-quarters of an inch. This shortening is explained by a corresponding elevation of the trochanter, which is usually abnormally prominent and is slightly displaced toward the anterior superior spine; there is also slight outward rotation of the leg. Until recent years this injury was supposed to be confined to adult age, and even at the present time in no text book is attention called to the peculiarities that distinguish it from the ordinary type. In childhood it does not usually entail the immediate helplessness and persistent disability that are associated with the injury. In many instances the patients are able to walk about within a few days after the accident. Thus it may be inferred that the separation of the fragments is usually incomplete, and that the fracture is rather a bending and

breaking than a displacement or impaction. The patient who has sustained a fracture of the neck of the femur is in the early stage of what is likely to be progressive coxa vara. Taking it for self-evident that an elevation of the trochanter, and a corresponding shortening of the limb without dislocation, can only be accounted for by a depression of the neck of the femur, the question remains as to the exact situation of the injury, whether it be in the neck or in the head of the bone at the epiphyseal line. The point in favor of fracture of the neck is this, that under the influence of sudden violence applied to the upper extremity of the femur, the injury is more likely to be of the smaller and weaker part rather than at the larger and better protected epiphyseal junction. This conclusion is borne out by the history and by the physical signs; for if the fracture were at the epiphyseal line, thus involving the articular surface of the joint, and there were sufficient separation of the fragments to explain three-quarters of an inch of shortening, the function of the joint must be impaired by the irregularity, increased by callus formation during the stage of repair; whereas in nearly all the cases reported by the author the function of the joint was practically perfect. The Röntgen pictures show the depression to be of the neck as a whole rather than at the epiphyseal junction, except in one instance. Anatomical evidence is supplied by a case seen with Dr. P. R. Bolton, in which diagnosis of fracture of the neck of the femur was made, and, as there seemed to be no indication of repair, the distal fragment, consisting of the head and nearly one-half of the neck of the bone, was removed. There is neither clinical nor experimental nor anatomical evidence to support the assertion that the epiphyseal junction is a weak point in the bone of a healthy child, in the sense that separation at that point is more common than fracture. If this junction is ever a weak point in this sense, it is rather in adolescence, when the external cartilage and resistant covering of periosteum have diminished to nearly the adult condition. The author describes the case of a boy of 16, and gives a Röntgen photograph which shows typical epiphyseal separation. He describes coxa vara at length, giving the technique of operation for replacing the neck of the bone. In conclusion he again calls attention to the fact that depression of the neck of the femur, whether it be simple or traumatic, predisposes to progressive deformity. For this reason operative treatment may be indicated at an early stage of the affection as a preventive measure.

Dermatitis Gangrenosa Infantum.—H. Judson Lipé^{*} says that gangrene of the skin in children is fortunately rare. The lesions are classified by Renault as: 1. *Gangrene due to chemical agents*, as carbolic acid. 2. *Gangrene caused by physical agents*, as burns, frost-bites, and compression. 3. *Gangrene due to vesicular obliterations*, including arterial embolism, infectious arteritis, and thrombosis—rare. 4. In the dyscrasiæ—*e.g.*, in diabetes—the lesion does not differ materi-

ally from some cases of spontaneous gangrene, except that the prognosis is less favorable. But there is a specific diabetic gangrene, in a certain sense, since all accidental wounds, especially on the feet or lower part of the thigh, become very easily gangrenous. 5. *Gangrene due to intoxication*, as from ergotin. 6. *Gangrene due to nervous affections*, as in spinal and cerebral lesions and in toxic neuritis. Another variety, almost entirely limited to children, is the variety reported by the author. The case belonged to the spontaneous form. The patient was a girl of 2 years and 3 months, well proportioned, but having shown no mental development. There was a decided tubercular family history. The child was in good condition on July 15, 1897, when it had its usual bath. The next morning it was restless, irritable, and somewhat feverish. On examination there was found what seemed like an immense flattened bulla extending from a point a little below the umbilicus for a distance of twelve to fourteen centimetres, the transverse diameter being somewhat less. The blister had ruptured spontaneously, and was flattened except at one or two small points where, on being punctured, a sero-purulent substance was discharged. The margin of the lesion was intensely red; the dermis became gangrenous and gradually sloughed off, beginning at the circumferences, leaving a denuded area from which a profuse exudate appeared. Several erythematous spots appeared about the anterior surface of the neck and upper anterior margin of the thorax. Bullæ appeared on eyelid and scalp. The fourth week after the first appearance of this lesion a condition corresponding to that of post-diphtheritic paralysis was noted. Mental apathy was marked. In a few weeks recovery was perfect. The pathology of this disease is still *sub judice*. The author believes that in this case the lesions were due to a paralysis of the arterioles, and that this was the primary manifestation of a toxic neuritis caused by the presence or the elimination of some chemical product of the growth of some organism—in all probability the tubercle bacillus—which showed itself later in the temporary paralysis. The treatment of these cases is simple. The general system needs support, and quinine and arsenic are the best remedies. Local antisepsis by the aid of boracic acid solutions and other antiseptics, such as aristol, iodol, or iodoform, will be sufficient. The sloughs should be removed. Camescarse recommends an ointment containing salicylic acid, oil of turpentine, etc., for the pain of the spontaneous form.

Diarrhea.—Charles O. Molz⁷ writes that three indications in the majority of cases are to be met: 1. The most important is a thorough cleansing of the intestinal tract by small and frequent doses of calomel, castor oil, or by enteroclysis if the cause is situated in the lower bowel. 2. Abstinence from food for at least twenty-four hours, or allowance of only digestible and non-irritable substances, such as albumin water, pepton-

ized milk, etc. 3. Correction of improper food, which in children is found to be the most frequent cause of diarrheal conditions. Opium is a harmful drug in most cases.

Diphtheria.—John S. Billings, Jr.,⁸ presents a plea for the more extended use of antitoxin for immunizing purposes in diphtheria. He believes that the increased number of cases of diphtheria in New York City in 1899 was probably due, in part, to neglect of a most important prophylactic measure against the disease—immunization by antitoxin. Immunization furnishes one of the most potent means of preventing the spread of diphtheria and lessening the number of deaths from this disease. It is probable that in some cases the immunizing dose of antitoxin hitherto recommended (150 units) is insufficient, and that at least 300 units should be used in children and 500 in adults. Owing to improvements in the mode of preparation and the increased concentration of antitoxic serums now in use, no ill effects are to be apprehended.

Herman B. Sheffield⁹ has been successful in making a correct diagnosis with the aid of the following differential points:

<i>Membranous Diphtheritic Laryngitis.</i>	<i>Membranous Non-Diphtheritic Laryngitis.</i>
Distinctly contagious, giving also a history of contagion.	Non-contagious.
Early enlargement of the submaxillary glands	Submaxillary glands, as a rule, not involved.
Diphtheritic patches are found, as a rule, on the fauces and posterior nares.	The fauces may be covered with a mucous exudation, which can easily be wiped off.
Early treatment, including intubation, neither aborts the disease nor always prevents a fatal issue.	As a rule it does.
Albuminuria is usually present.	Absent.

Heart Murmurs, Accidental, in Early Life.—Starck³ has found accidental heart murmurs much less common in infancy than in later childhood and in adult life, even in cases of marked anemia. He reports 4 cases, 3 boys and 1 girl, of whom 2 were 3 years old, 1 was 10 weeks old, and 1, 9 months. The first case was one of general tuberculosis; there was a loud systolic murmur heard at the apex and at the base. The autopsy showed the heart to be normal. The second was an anemic, rachitic child with an inconstant apex systolic murmur, who died of broncho-pneumonia; the heart was normal at autopsy. The third child had a chronic gastro-enteritis and marked anemia, with a loud systolic murmur at the base. She recovered perfectly. In the last case a systolic murmur was heard at the apex and at the base in the course of a broncho-pneumonia. The child made a good recovery.

Imperforate Rectum, the Treatment of.—W. P. Montgomery⁴ gives an analysis of 10 cases, in 9 of which colotomy was performed, and submits the following synopsis:

No.	Sex.	Age.	Operation.	Result.	Remarks.
1	M.	Three days.	Immediate colotomy.	Death on fourth day.	There was no proctodeum. Exploration by trocar had been performed before the case was seen. <i>Necropsy.</i> —The whole rectum was replaced by a fibrous cord four inches long passing to the prostate and the base of the bladder. There was much old hemorrhage in the pelvis.
2	M.	Four days.	Immediate colotomy.	Alive, age 18 months.	There was no proctodeum. The patient was sent home immediately after operation.
3	F.	Three days.	Immediate colotomy.	Alive, age two years.	The proctodeum was half an inch deep. The patient was sent home after operation.
4	M.	Three days.	Colotomy after perineal exploration.	Death in five days.	There was no proctodeum. The cecum presented, much distended and discolored, and was opened. The sigmoid could not be found on the left side. The patient was sent home to the parents. No necropsy was held.
5	M.	Two days.	Immediate colotomy.	Death in three days.	No proctodeum was present. <i>Necropsy.</i> —The pouch descended to three-quarters of an inch of the skin. There were patent auricular and ventricular septa.
6	M.	Five days.	Immediate colotomy.	Death in seven days.	The proctodeum was half an inch deep. The cecum presented and was opened. <i>Necropsy.</i> —The sigmoid loop passed over to the right iliac fossa.
7	F.	Two days.	Colotomy after perineal exploration.	Death in three days.	The proctodeum was half an inch deep. <i>Necropsy.</i> —The gut three-quarters of an inch above the proctodeum was attached to the upper end of the vagina.
8	M.	Three days.	Colotomy after perineal exploration.	Death in 17 days.	There was no proctodeum. Prolapse of the small gut through the abdominal wound occurred on the twelfth day. <i>Necropsy.</i> —The gut one inch from the skin was fixed to the prostate and the base of the bladder.
9	M.	Two days.	Immediate colotomy.	Death in three days.	There was no proctodeum; the sigmoid and rectum were distended. <i>Necropsy.</i> —The gut was three-quarters of an inch from the skin.
10	F.	One Month.	Perineal dissection and plastic operation.	Alive, age six months.	The rectum was imperforate; there was a small, gradually-closing recto-vaginal fistula. The rectum was opened at the perineum and the fistula was closed.

In conclusion, he says that before deciding on the relative merits and demerits of the perineal and iliac operations, they must be considered (1) as urgent operations for acute obstruction, and (2) as methods of permanent relief. The careful analysis of these cases points to certain limitations in the perineal operation from a life-saving point of view. In Curling's tables, out of 57 cases of the type we are now considering, the gut was not found on perineal exploration in 23. Owen did not find it in 4 cases out of 5. These feeble children are in no sense proper subjects for prolonged operation. Further, the acute obstruction is often in the cecum and will have a better chance of relief if treated by the abdominal route. The fact that there is considerable difficulty in the finding of the gut, and a possible chance that an opening in it at the perineum may not relieve the obstruction, is decided evidence in favor of routine colotomy in these cases. As to the comparative relief given by the methods, the author is of the opinion that an inguinal anus is more comfortable and more easily

attended to than a perineal anus. Further, the majority of children who recover from the perineal operation need almost constant attention to prevent stricture of the new passage. If more than half an inch separates the rectal pouch from the surface, a perineal anus will probably be a continual source of trouble. Immediate colotomy is on most accounts the preferable operation.

Influence of School Life on Vision.—Peter A. Callan⁷ is of opinion that there is no such thing as an absolutely perfect eye. He would call it a normal eye which has only a certain small amount of abnormalities. Such a normal eye, if tasked too much with poor light and bad hygienic surroundings, will cause reflex disturbances which will make the scholars very uncomfortable. At the present time scholars have too much to do. They have too long hours and not enough recesses. There is no question whatever that there is a depreciation of sight and that there is need of more wearing glasses than formerly. Myopia, all admit, is caused by an excessive amount of work.

Landry's Paralysis.—Soltmann¹⁰ gives the history of the disease, and reports a case in a girl 11 years old, of good family history, whose illness began suddenly with fever, malaise, headache, vertigo, and severe pains in the heels and legs, gradually giving place to paralysis of both lower extremities. Within three weeks the child was completely paralyzed, so that she could not sit nor hold up her head; dyspnea was present, also edema, erythema, and abolition of reflexes. Inunctions of mercury were followed by improvement and were repeated, together with warm baths, galvanism, salipyrin, and expectorants for the bronchial catarrh. The general condition became excellent.

The case is interesting because of the youth of the patient, the use of mercurial treatment, and the proof that even with so stormy an onset a case of Landry's paralysis may come to a standstill and recover.

Larynx Stridor, Congenital.—Stamm⁸ reports a case occurring in a 4-day-old baby, who fell on his head at birth and had had difficulty in breathing from the first. Nothing abnormal was found in any of the viscera; there was no cyanosis. The stertorous breathing continued, until Cheyne-Stokes' respiration and convulsions preceded death. There was probably a central nervous disturbance, with which the fall on the head had something to do. Another case recovered after five weeks of typical congenital stridor. No visceral lesion and no hypertrophied thymus were present in the second case.

Lesions of the Liver in Young Children.—Rowland Godfrey Freeman,¹¹ from observations made in the New York Foundling Hospital and St. Mary's Free Hospital for Children, reaches the following conclusions: 1. Descent of the liver down the right side of the abdomen, so that the right lobe reaches below the crest of the ilium, occurs not very rarely in infants,

particularly in those in whom the liver is enlarged. 2. Fatty livers occur very frequently in the infants and children who die at the Foundling Hospital, or in about 41 per cent of all cases. 3. The condition of nutrition of the child, as expressed by the absence of fat in general and wasting of tissue, apparently has no connection with the fatty condition of the liver, the condition of nutrition in the cases having fatty livers averaging about the same as in the whole number of cases. 4. Fatty livers occur rarely in the following chronic wasting diseases, marasmus, malnutrition, rachitis, and syphilis, unless such condition be complicated by an acute disease. 5. With tuberculosis fatty livers occur not more often than with other conditions. 6. Fatty livers occur most often with acute infectious diseases and gastro-intestinal disorders. 7. The two cases of cirrhosis of the liver examined by the writer ran a comparatively acute course. The livers on section showed a marked hyperplasia of the so-called new-formed bile ducts. 8. Focal necrosis of the liver may be a lesion of measles.

Lumbar Puncture in Pediatric Practice.—Carlo Giarre,¹² from the study of a number of cases, concludes: 1. That the procedure is useful in the diagnosis of meningeal hemorrhages and of purulent or sero-fibrinous meningitis, frequently enabling us to find the pathogenic agent of these diseases; also of tuberculous meningitis, in which the fluid extracted is physically and chemically different from that obtained in acute serous meningitis, cephalorachidian hyperidrosis, meningism, etc. 2. With the progress of our knowledge of the pathogenesis of acute serous meningitis and of the grave nervous disturbances secondary to infective diseases, which have heretofore been classified under the name of meningism, it is probable that lumbar puncture will give therapeutic results superior to those already known. 3. The operation proposed by Quincke is easy of performance and, when properly managed, quite innocuous, deserves to be adopted in practice, and is especially indicated in many affections of the nervous system which are of frequent occurrence in childhood.

Mastoiditis.—James Francis McCaw⁹ has an article upon this subject, which may be summed up as follows: 1. In threatened mastoid involvement and in mild acute cases the conservative plan of treatment should be first tried for at most a week or ten days, unless dangerous symptoms arise. 2. Operative interference should be substituted (a) in acute cases where there is sagging of the postero-superior canal wall, (b) where the infection is of a virulent nature, and (c) in all cases complicating chronic diarrheas. In general, the simple operation of Schwartz is all that is necessary in acute cases, while the radical is reserved for cases following chronic supuration of the middle ear.

Malignant Tumors of the Bladder in Children.—Luigi Concetti²² describes a case of sarcoma in an infant of eleven months. Tumors of the bladder in children are extremely rare. When they do occur they are most frequently found

between the ages of 1 and 2 years. They are nearly always malignant, and there appears to be a complete absence of epitheliomata, nearly all the cases reported having been of sarcoma, fibromyoma, and myxoma. Out of 40 cases 18 were girls and 22 boys. Vesical tumors occur usually in the form of multiple polypi, varying in size from that of a pea to that of a mandarin orange, rarely disseminated, but rather gathered into a mass. These tumors are apt to be very vascular, and are either covered with normal epithelium, or may have an ulcerated surface, or the superficial villi may be encrusted with calcareous deposits which feel like a calculus when examination is made with the catheter and thus lead to errors of diagnosis. The usual seat of the neoplasm is the fundus of the bladder, in the space bounded by the openings of the ureters and the urethra. These openings may be surrounded and more or less obstructed, preventing the flow of urine. Neighboring parts, such as the vulva and vagina, the uterus, the prostate, the retroperitoneal glands, the pubis, and the abdominal walls, are very liable to be invaded during the course of the disease, and especially after incomplete surgical operations, such as partial excision, scraping, etc. The tumors are reproduced with great rapidity after removal. No case is known of the tumor having invaded the ureters and kidneys. The symptoms are, as a rule, merely those of disordered micturition and vesical irritation, so that a diagnosis is not always easy. Hematuria sometimes occurs, characterized by its spontaneity, abundance, repetitions, and rebellious behavior toward therapeutic measures. In little girls the appearance of the tumor at the urethral orifice is a symptom of great diagnostic value. Introduction of the catheter will usually serve to clear the diagnosis. Rectal exploration is also not to be neglected, but cystoscopy cannot be recommended in the case of children on account of the large size of the instruments used. An examination of the urine is of little use. The prognosis is very bad. Even operative interference, in order to be of the slightest benefit, should be more extensive and radical than any operation that has so far been done. The earlier the intervention, of course, the greater the chance of success.

Ophthalmia Neonatorum, Diagnosis and Therapy of.—Ammon¹⁹ found 56 cases of gonorrheal ophthalmia among 100 cases studied. Of the remaining 44 cases, 2 were due to the pseudogonococcus, 15 to the pneumococcus, 2 to staphylococci, 3 to the pneumobacillus. Keratitis occurred eight times among the gonorrheal cases, twice among the non-gonorrheal. The pneumococcus inflammations ran a rapid course; after three to five days of profuse suppuration the process suddenly improved, and then healed in from ten to sixteen days. The author prefers protargol to silver nitrate in the treatment, and when one eye only is affected he protects the other by instilling a two per cent protargol solution daily. The non-gonorrheal cases took one-half or one-third as long to heal as the others, but the treatment was the same.

Orchitis Parotidea in Childhood.—Leo¹⁴ reports the case of a boy, 14 years old, who had had a double parotitis ten days before, and whose left testicle was swollen and exquisitely painful. There was no fever, and under rest and cold applications the testicle returned to its normal size in four days. These cases are much more rare in children than in adults, the reason probably being found in a chemical difference in the composition of the testicles before and after puberty. The poison of mumps can apparently grow on the adult testicle, but not upon the infantile organ.

Peripheral Neuritis following Chorea treated with Arsenic.—J. C. Railton¹⁵ reports 4 cases, in each of which an aggregate quantity of 6.3 grains of arsenious acid was sufficient to produce peripheral neuritis, even though distributed over a period of three weeks. It is well known, he says, that arsenic takes a very long time to leave the system, and probably it does not matter so very much, so far as the subsequent neuritis is concerned, whether the doses are spread over weeks or concentrated into the short space of eight days, as in one case, although a gradual increase in the dose has the advantage of securing a greater toleration on the part of the stomach. The chief lesson to be learned from these cases is that there is a risk of disastrous results following the treatment of chorea if that remedy is given in doses which amount in the aggregate to as much as six grains of arsenious acid. The results may give no warning whatever of their approach during the administration of the drug, but make their appearance afterward, with an interval varying from a week to a fortnight subsequent to its discontinuance. It is thus impossible to tell in any given case whether the treatment is going to be followed by toxic neuritis or not. The long period involved in the development of the symptoms, their subsequent decline, and the attendant discomforts render this accident one to be intensely regretted, although the author has not seen any symptom occur during the neuritis which threatened life, the paralysis never extending beyond the limbs. He strongly urges that no aggregate dose amounting to more than four grains be administered to a child during an attack of chorea.

Prolapsus of the Rectum in Children.—Charles Greene Cumston¹⁶ says that all cases of true prolapse of the rectum will show a tumor projecting out of the anus, varying in length from 6 centimetres in mild to 75 centimetres in severe cases. At the base of the tumor will usually be found a sulcus between the mucous membrane of the prolapsed gut and the skin of the anal orifice. In almost all cases the lumen of the gut may be seen in the centre of the tumor. There may be inclusion of the peritoneum in cases of prolapsus, but this occurrence is fortunately rarely met with. Sometimes the small intestine is present in the invagination. As to the etiology, the author thinks that one of the most important causes is *infection*, whether produced by a retention of the feces or by diarrhea which is produced by the bacteria of the gut, and the

pathologic changes which take place in the walls of the intestine certainly deprive it of its tonicity and render it lax. This applies, of course, to young children. In older children and adults the prolapsus is often due to the presence of a polypus, an ulcer, hemorrhoids, or some other lesion of the rectum. In the large majority of cases prolapsus of the rectum in children will readily yield to medical treatment if instituted early. The judicious use of a rubber rectal plug to keep the prolapse reduced, cleanliness, and tonic treatment with the use of strychnine, will probably give the best of results. Polypi, hemorrhoids, or other local lesions will require a surgeon's care, and after they are cured a proper medical treatment will do away with the prolapsus, if it is not too far advanced. Irreducible or constricted prolapsus will have to be resected. The author prefers the method of Mikulicz, who first cuts through the outer intestinal tube in its anterior circumference by cutting the tissues, layer after layer, catching up each bleeding vessel as it appears and ligating it with fine catgut. As soon as the peritoneal pouch has been opened its interior is examined for the presence of small intestine. The peritoneal cavity is then closed by a running suture. The anterior aspect of the internal intestinal tube is cut through little by little until it is opened, and then both intestinal tubes are united by deep silk sutures to the entire line of the incision. The posterior surface of the prolapsus is treated in absolutely the same way, both intestinal ends being united by means of silk sutures, and thus the resection is completed. Mikulicz advises against packing the rectum after the operation; he simply covers the line of sutures with iodoform, places a strip of iodoform gauze over this, and then a wood wool cushion. Daily irrigation with a mild antiseptic solution should be used, opium given internally for a week, and the patient kept upon a diet leaving little intestinal residue. The results of operation are usually excellent.

Rachitis, Treatment of, with Suprarenal Extract.—Stoeltzner¹⁷ treated 11 cases in private practice with the extract, observing the children for an average time of three months. He then applied the treatment to about 70 dispensary cases, and concludes that the general condition of rachitic children is greatly bettered thereby, and no untoward results ever occurred. The sweats, craniotabes, delayed dentition, delayed power to walk and sit, general tenderness, restlessness and vasomotor disturbances are all markedly influenced for the better. Lumbar kyphosis and the softness of the thorax are often improved, while the size of the fontanelle, the rosary, and the epiphyseal swellings are affected least. Spasm of the glottis and other symptoms of tetany were totally unimproved. The effect of the treatment is often visible in the first week; it then becomes more slow, and often ceases when the treatment is interrupted, to reappear upon its resumption. Even complicated cases are visibly improved. One very severe case died of capillary bronchitis after one

month's treatment, and histological examination showed that the rachitic bone lesion was markedly improved.

Sarcoma.—James Finlayson¹⁴ reports a case in a boy 3½ years old. The case during life was a clinical puzzle. The aspect was that of feebleness with great pallor and anemia, and with slight indications of rickets, especially in the lower limbs. For three months there had been failing health after an attack of vomiting of short duration. The vomiting was not associated with any appearance of blood, and was followed by constipation at first, and then intercurrent diarrhea. A vague account of some tarry evacuations was obtained from the mother. Once, while under observation, was some brownish fluid, like altered blood, brought up from the stomach; even this may have been due to the use of raw meat juice, though twelve hours had elapsed since its introduction into the stomach. There seemed to be no pain anywhere, and no tenderness in the abdomen. The abdomen was slightly distended. No tumor could be felt, but after a time, on careful search, the spleen, as was supposed, was felt high up under the left ribs in the lax abdomen. This may have been, in reality, the tumor, as the autopsy revealed a spleen of normal size. Examination of the blood failed to show any cause for the anemia and progressive pallor with a sallow tinge. There was a slight but pretty continuous pyrexia. Vomiting became a prominent symptom, especially toward the end. The aspect of the child throughout was one of extreme apathy.

Spasmus Nutans.—Ausch⁹ reports 4 cases, 2 of which were rachitical and 3 lived in dark rooms. The disease began respectively in the ninth, sixth, fifth, and sixth month of life; all recovered. Nystagmus was present in all the cases, though in one it was noted on one occasion only, and in this case a permanent convergent strabismus appeared.

Spina Bifida Healed during Fetal Life, Case of.—Eröss¹⁴ observed a newly-born girl baby with a non-fluctuating, walnut-sized tumor situated over the fourth cervical vertebra. It was covered by thin skin, normal in color and appearance. Running through the centre of this mass was a hard strand attached to the bone underneath; and it was evident that there was a distinct splitting of the vertebræ. The child was otherwise perfectly well, and was not observed after the tenth day. The author believes this to have been a case of healed spina bifida, the hernial sac remaining. Only one other such case has been reported.

Sprue.—Lauder Brunton²⁰ says that the characteristics of a well-marked case of sprue are: 1. That the mouth is sore. 2. The anus is sore. 3. There is well-marked diarrhea, the stools being of a liquid, white, and frothy nature. The sore mouth may be treated by many different things. One is sometimes tempted to give the little tabloids consisting of compressed chloride of ammonia or chlorate of potash, but if put into the mouth they hurt too much, because, as they are dissolved by the saliva, the solution thus made is too strong. But

we may use a diluted solution of chlorate of potash or borax, say five grains to the ounce, and this is often a great relief to the patient. A dilute solution of bicarbonate of soda seems to help a good deal, because it neutralizes any acid that may be present in the mouth and lessens the soreness of the tongue. Lime water also may be used as a mouth wash. The soreness of the anus may be relieved, or perhaps entirely removed, by the use of various ointments, as, for example, one containing bismuth made up with lanolin. One of the author's patients obtained relief by the use of homocoea. If the bismuth alone does not act, one may put in a small proportion, say one part in twenty, of calomel ointment or else of unguentum hydrargyri ammoniati, into the mixture of oxide of zinc and lanolin. The patient should be put on a milk diet. If milk absolutely cannot be taken, we may give a diet of meat juice. Maltine or liquor pancreaticus added to the milk diet has sometimes been effectual, the white color of the stools being in some cases due to non-absorption of fat, not only due to absence of bile, but also to absence of work on the part of the pancreas.

State Care of Indigent Crippled and Deformed Children.—Arthur J. Gillette¹ gives an account of the work done in a ward set aside in a hospital for the exclusive use of children received under the provisions of the law of Minnesota, passed at the solicitation of physicians. The Board of Control provides and cares for these children as patients are ordinarily cared for in first-class hospitals, including nurses, attendance, food, washing, bandages, and medicine—in fact, everything that the children need except physician's attendance, and braces or mechanical appliances. The Board of Regents of the University pays the Board of Control for the services mentioned \$3.75 per week for all children between 2 and 12 years of age, and \$4.50 per week for children between 12 and 16 years. The rules for admission are that the child must be under 16 years of age and amenable to treatment, that the child must have resided in the State not less than one year, and that the parents, guardian, relative, next friend, or other person shall make an affidavit as to financial condition. Accompanying this application must be a statement from the family physician regarding the history of the case as to the disease, present condition and previous treatment, also his opinion as to their inability to pay for treatment. A separate building was finally set aside for the use of these children, and is filled to overflowing. The author describes cases and shows how great the improvement which has resulted from treatment—results which could not have occurred had the little patients continued living at home away from the physician's daily care, under conditions in which suitable hygiene, food, clothes, braces, and mechanical appliances could not possibly be obtained. Educational advantages also are given to the children in the institution.

Thyroid Extract in the Treatment of Fractures.—An editorial² says that while one is at first greatly surprised to read of such a remedy for such a condition, the mode of reasoning

which led to experimentation is not so difficult to discover as at first sight one might think. "That the administration of thyroid extract has some influence on the growth and development of bone in infantile myxedema is well established. Among other beneficial results of its administration in this disease a marked increase of stature is frequently observed. Some writers claim that in cases of retarded growth from other disorders, such as rickets, athrepsia, and albuminuria, the administration of thyroid extract will cause increase in the length of the long bones, provided ossification of the epiphyseal cartilages has not taken place. Hofmeister showed by means of the X-ray that the changes in the bones of animals from which the thyroid glands had been removed are very similar to those which occur in the bones in infantile myxedema. They consist mainly in arrest of growth in the diaphyses and slow ossification of the epiphyses of the long bones. Considering these facts, some were led to watch the effect of removal of the thyroid gland in cases of fracture artificially produced in animals. They claim that union was remarkably retarded in many instances. From such observations as those above cited, some hopeful therapists tried the effect of organo-therapy in delayed union of fractures, and have reported quite a number of cases apparently cured by this means alone after several of the usual methods had failed. Thus M. Potherat . . . presented for a colleague a report of two cases treated successfully by this method. The first case was a compound fracture of the leg which massage and immobilization in plaster failed to cure after twenty-four days. Under thyroid, consolidation took place in a few days. The second case was a fracture of a rib which had not united after thirty-five days of the usual treatment. In ten days union was firm, but the patient died on the eleventh day of cerebral hemorrhage. The author wonders whether the treatment had anything to do with occurrence of the latter. He thinks that this treatment is not devoid of danger and should be resorted to only after deliberation."

Typhoid Fever.—M. G. Variot²⁵ is not in favor of cold bathing as prescribed by Brand, because he considers that it produces greater shock than in adults, often followed by cardiac collapse. He much prefers the tepid baths gradually cooled according to Bouchard's method. The latter in eight years, out of 561 cases, had a mortality of 54, or 9.63 per cent, these statistics including those who had a complication of diseases. The per cent of mortality claimed by the advocates of the cold-bath treatment is about 7 to 8 per cent, so that it will be seen that the one obtained by tepid baths is very little higher.

E. Ausset²⁶ is a decided partisan of bathing in typhoid fever, believing that balneation acts chiefly upon the nervous system, causing lowering of temperature, regulation of respiration and circulation, and free action of the kidneys. The younger the child the more readily and promptly does the nervous system react. But bathing should be regulated by the indications,

just as is the administration of any medication, and therefore Brand's system is not to be applied rigorously. The desired action is usually to be obtained with a temperature of 26° to 28° (78.8° to 82.4° F.), except in some grave cases in which only the cold baths appear to give good results. The author has never seen any bad results follow cold bathing, but to save undue irritation and suffering to the child and its relatives, and because equally good results as a rule follow the milder method, he prefers to start with the tepid baths. This applies to childhood only.

M. Comby²³ out of 168 cases had 12 deaths. The youngest patient was 2 years old, the oldest 15. There were 42 relapses, 8 double, 1 triple, 1 sextuple. All the patients were treated by means of cool or cold baths. Even before absolute confirmation of the diagnosis it is his rule to give a bath of 28° to 30° (82.4° to 86° F.); if reaction is good the subsequent baths are lowered to 25° (77°) or even 20° (68° F.). This temperature is kept up until the child shows some symptoms of intolerance, chilliness, feeble pulse, etc., in which case the temperature is raised a few degrees and the baths are shortened. This treatment is, in other words, carefully adjusted to the needs of the patient, in some cases baths being given at four, five, or six hours' interval instead of at three as prescribed by Brand. The author attributes his good results in the treatment of typhoid fever chiefly to the use of baths. In some cases of tachycardia and of threatened collapse he has given injections of caffeine, sparteine, or strychnine, and has also administered alcohol, quinine extract, and liquor ammoniæ, but he considers this stimulating and tonic treatment merely as accessory. Children support cold bathing better than do adults, and to give up this treatment would be a distinct step backward in therapy.

A. B. Marfan²⁴ says that whenever he is called to a case of typhoid fever in a child he always begins with the administration of quinine. When the rectal temperature between 4 and 5 o'clock in the afternoon is above 39° (102.2° F.), he has a child over 5 years of age take 0.75 gramme ($12\frac{1}{2}$ grains) of the neutral bichlorhydrate of quinine in three doses at intervals of half an hour. The next morning the patient either shows the benefit of the treatment, in which case the treatment is continued in exactly the same way and for the same indications as the first dose; or else no improvement is noted, and, without delay, cold baths are given. The first one is at 32° (89° F.) and lasts from eight to ten minutes. Three hours later, if the rectal temperature is above 39° (102° F.), a second bath at 30° (86° F.) is given, and so on until a temperature of 25° (77° F.) has been reached. If the rectal temperature is less than 102° F. no bath is given, but the temperature is taken every two hours, and as soon as it is above 102° a bath is administered. Since January 1, 1894, when the author began to use this method of medication, the total mortality from typhoid fever in his hospital work has been 7 per cent.

The objections made to cold bathing in children's diseases are threefold. The first, formulated by Fischl, is that the tem

perature is not so sure to be brought down as in the case of adults. To this it might be replied that the beneficial action of the water does not consist entirely in the lowering of the temperature. Moreover, in the great majority of cases, a bath at 25° used in typhoid fever in childhood does lower the temperature as much as or more than 1° Centigrade.

In the second place, it has been said that the shock of the cold water would be likely to stop respiration. The author has noted this but once, and that in a child of 4 years, who was plunged at once into a bath at 22° (71° F.). The apnea was merely temporary, for respiration returned when the child was taken out of the bath and flagellated with wet cloths. Finally, it has been said that children do not obtain a good reaction and are apt to exhibit symptoms of collapse after the bath. This is not true, according to the author's experience, unless by collapse is meant a slight trembling and a little blueness of lips and limbs such as occasionally occur. Should a very high temperature be unmodified by the cold bathing, the author supplements the treatment by the injection of artificial serum, to which caffeine is sometimes added, and has had good results from this procedure.

M. L. Guinon²⁵ defends cold bathing in typhoid fever in childhood against certain accusations which have been made against it, and urges that greater consideration be given to the method of its administration. In his experience, outside of cases where there was cardiac weakness, he has always seen baths at the temperature of 27° to 25° (80° to 77° F.) well supported. But for this, two conditions were necessary: the first, that the cold bathing should have been applied from the first days of the disease, when the fever had for twenty-four hours been above 39° (102° F.); and, second, that the child should have been accustomed by degrees to cold water by a gradual decrease of the temperature of the baths given. The physician should always be present when the first bath is given, unless there are trained assistants; there should be friction or light massage of the limbs, and a wet sponge or cloth should be kept on the head. The temperature of the bath should be modified according to the condition of the patient, the resistance and tenacity of the fever, and its duration should vary according to the tenacity of the fever. Occasionally, and especially during some epidemics of typhoid, a child with a weak heart will not tolerate cold bathing well; in these cases ice placed on the heart, with the administration of strychnine and sparteine, will relieve tension and allow of a continuation of the cold-bath treatment; if these methods do not suffice, the injection of salt water, 50 to 100 grammes (1 ounce 5 drachms to $3\frac{1}{2}$ ounces), will usually increase tolerance. In the rare cases where a cold bath is not supported at all, it may be replaced by a cold pack.

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ITEM.

THE SAMUEL D. GROSS PRIZE, ONE THOUSAND DOLLARS.
—No essay which the trustees deemed worthy of the prize having been received on January 1, 1900, they hereby announce that the prize will be awarded on October 1, 1901.

The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the competitor who receives the prize shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery, and that on the title page it shall be stated that to the essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 219 South 13th street, Philadelphia," on or before October 1, 1901.

Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

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Trustees.

PHILADELPHIA, February 20, 1900.

THE AMERICAN
JOURNAL OF OBSTETRICS
AND
DISEASES OF WOMEN AND CHILDREN.

VOL. XLI.

MAY, 1900.

No. 5.

ORIGINAL COMMUNICATIONS.

A PROBLEM IN ANTENATAL PATHOLOGY:
RECURRENT MONSTRIPARITY.

BY

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(With three illustrations.)

ANTENATAL pathology abounds in problems. The relation of maternal and paternal states to the condition of the infant yet unborn; the passage of poisons and infections and germs through the placenta from mother to fetus and from fetus to mother; the ultimate causes of malformations of the embryo; the transmission of morbid tendencies through the germ from one generation to another and to yet another—these and many others are the puzzling problems of prenatal pathology. There is no royal road to their solution. The popular mind, and to some extent the intelligence of the profession, have tried to find a way, a short cut, through the explanation of the maternal impression; but to the scientific this explanation has appeared to be little short of a relapse into medievalism. The

student of antenatal pathology must travel to his goal building a road slowly and with infinite pains as he moves forward. Years ago Britain tried to save Gordon and the Soudan by rushing a column across the desert, and failed; Kitchener took



FIG. 1.—Hydrocephalic fetus, showing also absence of right thumb and radius.

years to build the Soudan Military Railway, and succeeded—succeeded completely, Gordon would generously have said. The rush to explain antenatal pathological phenomena by the “maternal impression” has brought nothing but a loss of prestige to the medical profession in the eyes of the scientific

world. We must more slowly but more surely build up a knowledge of such matters founded upon the application of the principles of general pathology to their elucidation. The problem which I am about to state will serve at least to reveal some of the difficulties which lie in the path of the antenatal pathologist looking for a solution thereof. The consideration of the impediments in this case may clear the way for further advance.

In the year 1893 the problem referred to first came under my notice, and it has been more or less under it ever since; but lately it has become aggravated and pressing. It is, in a word, the history of a series of developmental disasters affecting a healthy woman, the wife of an apparently healthy man. In 1893 my friend Dr. R. A. Lundie, in whose practice the case is, sent to me for examination a hydrocephalic female fetus (Fig. 1) with absence of the right thumb and radius. During the pregnancy of which this fetus was the product no unusual symptoms had been noticed, but three days before labor the waters escaped, and two days before delivery the fetal movements ceased. The labor was easy, and it was found that the cranial bones had given way and the hydrocephalic fluid lay partly inside and partly outside the skull. The fetus looked as if it might have been dead for two or three days in utero, as the epidermis was absent at some places. It weighed 3,270 grammes, had a length of 54 centimetres and a cranial circumference of 50 centimetres. The membranes, cord, and placenta had, it was stated, a normal appearance.

The previous obstetric history of the mother of this hydrocephalic female thumbless fetus was as follows: She was married at the age of 23, and within a year thereafter she gave birth at the full term to a living, normal male infant, who still lives and is now (1900) 11 years of age. The pregnancy was normal. This was in 1889. Two years later (1891) she had her second child, also a boy, under similar happy circumstances and with a like happy issue; he is now 9 years old. In 1892 she aborted at the second or third month of her third pregnancy, and in 1893 she gave birth to the hydrocephalic dead female fetus with absence of the right thumb, as has been recorded above. It was noted at the time that the mother was herself well formed save for a marked absence or imperfect development of the short muscles of both thumbs. This anomaly had existed since birth, and a sister had a similar defect implicating one thumb. Her mother, the grandmother

of the hydrocephalic fetus, had also an imperfect development of the same group of muscles. In all the defect was quite evident and interfered to some extent with the usefulness of the thumbs, which could be flexed across the palm, but not



FIG. 2.—Anencephalic fetus, showing also malformed right thumb, amniotic adhesions, etc.



FIG. 3.—Infant with absence of right thumb and both radii, and malformed left thumb.

turned so as to face the other digits. With regard to the grandmother, it may be noted here that she had had several miscarriages, but, so far as is known, none of them were monstrosities, and her full-term children were not deformed save

as regarded the state of the musculature of the thumbs above referred to.

I must now complete the record of the obstetric history of this woman. In 1894 her fifth gestation ended in the birth of a living normal *female* infant, who still lives and is now nearly 6 years old. The patient's next pregnancy (sixth) was prolonged to about eleven months. It ended in the birth of another female infant, weighing 3,520 grammes and measuring 45 centimetres in length, and showing quite a number of malformations (Fig. 2). It was anencephalic; it had a localized spina bifida in the lumbar region; one foot was in a condition of talipes calcaneus; the right thumb was malformed and attached only by soft tissues to the hand, and the fetal membranes and placenta were connected with the margin of the spinal defect by an amniotic band. Dr. Lundie was not present at birth, and it cannot be ascertained whether there was hydramnios or not. Fetal movements were felt two days before labor, and the condition of the fetus bears this out. This happened in 1895. In 1898 another female infant was born, who lived only for five weeks, being delicate from the first; and now, in 1900, this unfortunate woman has again given birth to a female infant, evidently premature, of small size (weight, 1,320 grammes; length, 39 centimetres), with absence of both radii and with absence of the right thumb and defective development of the left, which was attached to the hand by a narrow piece of skin. This infant (Fig. 3) was born alive, but survived birth only three days. The placenta was small, and the cord was inserted into the margin of it (battledore). Dissection revealed commencing hydrocephalus, but there were no external signs of it.

In order to complete the case record it may be added that the father, who is now 37 years of age (two years older than his wife), is a healthy man, thin, dark, and rather neurotic. He comes of a neuro bilious stock, and is not a total abstainer, although it would be wrong to describe him as a heavy drinker. The mother and her three living children show no signs of syphilis, rickets, or other diathetic conditions. I have personally examined them all, and they can be described as quite healthy, and, save for the deformity of the mother's thumbs, quite normal.

Summary of History of Case.—Mother 35; married at 23; defective thumb muscles inherited. Father 37, healthy.

Pregnancies.	Result.
1	Male infant; normal; still alive, age 11 years (1889).
2	Male infant; normal; still alive, age 9 years (1891).
3	Abortion at second or third month (1892).
4	Female, dead-born, hydrocephalic fetus, right thumb and radius absent (1893).
5	Female infant; normal; still alive, age 6 years (1894).
6	Female, post-mature dead-born, anencephalic fetus, with malformed right thumb, amniotic band, etc. (1895).
7	Female infant; congenitally weak; lived five weeks (1898).
8	Female premature infant, with absence of both radii and of right thumb and malformed state of left thumb; died in three days; battledore placenta (1900).

It will be noted that in this obstetric history since the year 1892, when the abortion occurred, almost everything seems to have gone wrong in the reproductive record of the patient; hydrocephaly, dead birth, anencephaly, spina bifida, still-birth, congenital debility, malformed hands, malformed feet, prolonged gestation, shortened gestation, amniotic bands, battledore placenta, absence of radius—all go to make up an appalling series of developmental disasters and reproductive failures. Prior to the abortion there were two pregnancies, which resulted in the birth of two normal healthy boys who are now alive. After the abortion there were five pregnancies, which resulted in the birth of two dead-born monstrosities, a malformed premature infant who died in three days, a congenitally weak infant who succumbed in five weeks, and one healthy child who still lives. The children born before the abortion were boys, those born after it were all girls; both the children born before the abortion are alive, four out of five of those born after it are dead; both the boys born before the abortion were normal in development, three out of the five girls born after it were grossly malformed.

A scrutiny of the facts in this perplexing history brings out several noteworthy points: first, the series of antenatal deviations from the normal began with an abortion; second, the pregnancies do not appear to have been attended with morbid maternal symptomatology, even the almost universal "maternal impression" being absent; third, the male infants were normal, while the females, with one exception, were either deformed or died early; fourth, there were anomalies of the thumbs in three generations, with family prevalence in at least two generations; and, fifth, the net economic result of

eight pregnancies was three living children instead of eight. Some of these facts are in accordance with the ascertained laws of teratology, such as the prevalence of monstrous developments in female infants as compared with males, the family prevalence of malformations, and the association in the same history of the various phenomena of antenatal pathology, viz, abortion, premature labor, post-mature labor, malformations, monstrosities, still-birth, and congenital debility. On the other hand, the absence of any morbid symptomatology in pregnancy, and the general good health of the parents and their apparent freedom from diathetic states, such as syphilis and tubercle, and from alcoholism, are remarkable, although not opposed to the recorded experiences of observers of teratological phenomena. The birth to the same mother of a hydrocephalic and later of an anencephalic fetus I have already noted in another case,¹ and I have also reported another instance of protracted gestation with the occurrence of anencephaly² which was narrated to me by Dr. Christopher Martin, of Birmingham, in 1895.

The facts that have been referred to, taken in conjunction with the general laws of antenatal pathology, throw some light—not much, it must be confessed—upon the important matters of causation and treatment.

First, in regard to the question of etiology, two factors must, I think, be separated. There is the tendency, apparently hereditary in the mother's family, to malformation of the thumbs. It may be supposed that in the formation of the fetus in this family there is a special liability of the thumb to become the site of malformation. If all the reproductive processes are at their best this tendency may be overcome and a normal infant born, as was the case with the two male infants and the first female infant; but it may be hazarded that when the developmental powers are below par, so to speak, the part of the body which is hereditarily weak in formative force ("nisus formativus," to use an old expression) will be the first to exhibit a deviation from the normal in structural formation; hence the birth of three infants, malformed in different ways, it is true, but all of them malformed in the same region in addition to the other malformations. In the recurring and persistent presence of an anomaly of the thumbs I recognize the hereditary element in the etiology of this case.

¹ Transactions of the Edinburgh Obstetrical Society, xx., p. 163, 1895.

² Teratologia, ii., p. 120.

But I think it must be admitted that heredity alone will not serve to explain the causation altogether. I believe it must be supposed that between the birth of the second child (the healthy boy) and the occurrence of the abortion with all its succeeding train of antenatal ills, either the maternal or the paternal reproductive powers must have been seriously interfered with and weakened; for it is evident that from this time onward the spermatozoa and ova, that were able previously to carry embryogenesis to the high level of the production of normal males, could no longer do more than lead to the birth of weak and malformed or actually monstrous females. In a sentence, if we could find out the cause of the abortion in this family history we might be on the way toward the discovery of the cause of all the morbid antenatal phenomena. Unfortunately this is just what it seems impossible to do, for, as I have said, there is no record or sign of grave depreciation of either the maternal or the paternal health at this time. Had the father acquired syphilis or the mother developed tubercle, or had either of them been subject to any toxic or infective influence about this period, some indication would have been forthcoming of the cause of the abortion and of its sequelæ. As a matter of fact, there is no such history; and even in regard to the taking of alcohol by the father, there is no reason to look to that as a sufficient toxic agency, for there is no evidence that it was in excess. That some morbid influence, either in father or mother, came into action at this time there is not in my mind a doubt (and in many cases of the production of monstrous or diseased offspring I have been able to discover it and to observe its nature); but what it was in the meantime remains obscure. Some cause must certainly have arisen to convert a woman whom we may call a boniparous primipara into a monstriparous and morbiparous multipara. There is as much or more difference between a woman bearing healthy living males and one producing monstrous dead females as there is between, for example, a man with healthy lungs and one with double pneumonia. In the latter case none would doubt the incidence of a sufficient morbid cause to bring about the vast change in the man's condition, and it is only applying the same principle of general pathology and etiology to the former case to look for a similarly effective cause in it. Disorders in the function of reproduction demand causes as much as do those of the function of respiration, and experimental teratology, as well as clinical observation, goes

to show that the causes of monstrosities and of other antenatal morbid states are of the same nature as those of postnatal pathological conditions, that they are microbic, toxic, and traumatic.

Second, with respect to the matter of treatment, it must be confessed that up to the present that is most correctly described as "*therapia nulla*." The great problem in this case is to restore the mother (and father) to what may be called the *status quo ante abortum*. The difficult task before the practical antenatal pathologist of the future is the checking of recurrent monster-bearing, for the fact that pathological pregnancies tend to repeat is notorious. From the economic standpoint of the well-being and growth of the population, malignant monstriparity and morbiparity demand our attention; and when, as in some countries, the birth rate begins to fall, the problem becomes so much the more pressing. When a marked disease or tendency thereto exists in either mother or father, it of course must be dealt with; the association of syphilis and the morbid phenomena of abortion, still-birth, monster-bearing, and congenital debility is well known, and the beneficial effect of mercury under such circumstances is equally well known and appreciated; and there are other conditions, such as alcoholism, which are similarly causative and similarly curable. The difficulty in the present case is the absence of any such evident causal agency, and therefore the impossibility of directing therapeutic means against it. Two suggestions I have made to Dr. Lundie and to his patient (and the latter, I need hardly add, would suffer much in the hope of bringing to an end this series of reproductive fatalities), both of which are hypothetical and empiric. Since it is evident that the proximate or immediate cause of the malformations (in one infant at least) was the abnormal formation of the placenta and amnion (for there were amniotic adhesions, and the anomalies found were explicable either by amniotic pressure or by amniotic adhesion), it has been suggested that before the supervention of another pregnancy the uterus be curetted, in the hope that possibly a mucous membrane more capable of growing a normal placenta may be produced. Further, it may be hazarded as probable that substances which stimulate growth and development after birth, such as the thyroid extract, may also encourage normal embryogenesis before birth. It has been recommended, therefore, that this woman receive thyroid extract during the early

weeks of her next gestation. But, as I have already said, these means are suggested without much feeling of hopefulness and entirely on the strength of hypothesis. They are aimed at the great problem of how to prevent the procreation of the unfit—a problem which it would be foolish to hope will soon be solved.

24 MELVILLE STREET, EDINBURGH.

INDICATIONS, TECHNIQUE, AND RESULTS OF AN IMPROVED
ALEXANDER OPERATION IN ASEPTIC ADHERENT RETRO-
VERSIONS OF THE UTERUS, WHEN COMBINED WITH
INGUINAL CELIOTOMY VIA THE DILATED
INTERNAL INGUINAL RING.*

BY

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(With six illustrations.)

THE literature pertaining to the Alexander operation was very completely reviewed only three years ago in a classical article by Dr. George M. Edebohls,¹ of New York, wherefore the writer deems it unnecessary to repeat it and will treat only of the most practical features of the subject.

The *Indications* for the combined operations here mentioned are recognized best after stating a number of fundamental general principles or postulates, most of which will find general acceptance. And for the reasons or proofs for declarations that to some may appear doubtful, the writer must refer his readers to other allied publications which help to make the rationale of his conclusions and the choice of his methods clear.²

1. Although retroversion and retroversio-flexion are pathological, they are so only in a secondary degree, not causing conditions that can be fatal directly (*indicatio quoad valetudinem, non quoad vitam*).

2. For disorders of such a moderate degree of pathological gravity no operation is advisable that (1) has any clearly

* Presented at the International Congress of Gynecologists and Obstetricians at Amsterdam, August, 1899.

perceptible rate of mortality; (2) that interferes with gestation or embarrasses labor; (3) that materially disturbs the anatomy or the functions of the organs implicated or of those adjacent to them; and (4) whose purposes or good results are not assured to continue in full force after subsequent parturition.

3. Vaginofixation, vesicofixation, and ventrofixation and suspension of the uterus are to be avoided in all cases that retain a capacity for conception, because (1) they are unscientific and unnatural, and secure an unnatural position for the organs; (2) because every feature of their technique which is inclined to secure lasting results is diametrically opposed to the interests of the uterus in pregnancy and labor, there being no parallelism of interests or forces between the two objects; (3) because of the great uncertainty as to the firmness or strength of the direct fixation of the uterus, and, in mediate fixation (suspension) of it, the extreme uncertainty as to the strength and the time of formation and duration of the so-called artificial ligaments, which are not ligaments at all, because they cannot grow with the uterus during gestation nor become involuted with it subsequently; (4) because these operations either create compromising conditions or positive complications in gestation or labor, or subject the patient to the danger of ileus, or give no assurance against a recurrence of the displacement after labor.

4. The only physiological structures that, as a part of the uterus, keep pace with it during its phenomenal transformations, and can always be found and made to hold the uterus in anteversion permanently without embarrassing its important functions, are the round ligaments. And the only manner of dealing with these round ligaments that has been proved to secure an anteversion that will stand the critical test of pregnancy and labor also is a thorough and equable shortening of them by way of the inguinal canals, under the supervision and guidance of an intelligent finger introduced through the dilated internal inguinal rings.

5. Retroversion and retroflexion of the uterus are the most frequent causes of pathological descensus of ovaries. From this follow embarrassment of their venous circulation and lowered trophic conditions, which, together with the traumata experienced by the ovaries (the left one chiefly) between the body of the retroverted uterus above and the variably filled rectum or sigmoid flexure beneath, predispose them to infection or induce in them chronic inflammatory processes and degenerations.

6. These pathological changes in the adnexa are present to a variable degree in a large majority of both movable or adherent retroversions or flexions. They can be arrested and the health and functions of the organs can be largely restored by judicious conservative surgical treatment, and by securing them in their normal, more healthful and sheltered locations (Waldeyer,³ Aug. Martin,⁴ Hammerschlag,⁵ Luschka⁶).

7. To do this constitutes a large part of the indications in nearly all cases where curative surgical measures are adopted for retrodeviations of the fundus uteri (the terms retro-displacement and retrodeviation of the uterus should be discarded, because they do not refer to the inclination of the long uterine axis at all, and because they may be confounded with retroponation, *i.e.*, backward retraction of the normally anteverted uterus); and, with reference to the ovaries, this implies a sufficient access to the lateral walls of the pelvis to resect the ovaries without doing violence to their lateral supports, and to suspend them by shortening their proper lateral suspensory ligaments (Henle: Ligamentum infundibulo-pelvicum and infundibulo-ovaricum) when they are not sufficiently restored to their normal location merely by correcting the displacement of the uterus.

8. Such a sufficient access to the lateral wall of the pelvis as will answer for the performance of these more ideal conservative and prophylactic surgical procedures can be had by way of an ample median ventral incision and *via* the dilated internal inguinal rings in conjunction with a thoroughly performed Alexander operation, but not by any of the vaginal routes, which are indeed very serviceable for purposes of extirpation, but not for conservative surgery upon the adnexa; because the ovaries are thereby necessarily and perniciously dragged down and inward, and then cannot be restored and secured by these routes in their normal lateral locations by shortening their lateral suspensory ligaments (Sänger').

9. Experience shows that in the majority of all infections that occur in the uterine appendages and the pelvic peritoneum, the infecting agents do not remain active indefinitely, but lose their virulence or die out without leaving foci or accumulations of actively infectious material in or about these organs. But a variable degree of invalidism is caused by adhesions, fixations, deformations, and degenerate conditions in the uterine adnexa, which have resulted from the previously active inflammatory processes. And for the perform-

ance of all rational and efficient conservative or radical surgical acts that are indicated by the conditions mentioned, ample access and facility is usually given by bilateral inguinal celiotomy, made by splitting the aponeurosis of the external abdominal oblique muscle and dilating the internal abdominal ring; and this is the most innocent and effective route to be chosen, with certain exceptions, when the pathological conditions described exist together with retroversion or retroflexion of the uterus.

A review of these my postulates indicates that a procedure which resembles a bilateral Bassini hernia operation more than it does the original operation of Alexander, is indicated in combination with inguinal celiotomy in all retroversions and retroflexions of the uterus, movable and adherent, that require treatment and are not the seat of depots of pus or other fluid infectious substances that might be extruded into the peritoneal cavity. This precludes the performance of this operation during the continuance of any acute inflammatory process in the parts. The innocent, benign, and satisfying celiotomy feature of the operation is necessary, at least to the extent of a careful digital exploration, in connection with shortening of every single round ligament, in order (1) to be certain that no obscure fixations or adhesions of the uterus or adnexa remain; (2) to discover diseased parts or conditions of ovaries and tubes that are not otherwise palpable; (3) to prove that the round ligament, when it has been apparently drawn out sufficiently, really pulls from the fundus uteri and not merely from the lateral portion of the broad ligament, from which it must be specially detached in many simple cases in order to secure a complete and durable result. These three features just mentioned explain largely why the simple old Alexander operation did not and cannot become generally adopted or popular, for it cannot produce sufficiently complete and uniform cures, either anatomically or subjectively, even in the very small class of selected cases to which it is applicable.

CONTRAINDICATIONS.—1. Probable presence of actively septic material which, in the absence of sight, might be extravasated into the abdomen unnoticed.

2. Extreme corpulence of the patient associated with marked fixation of the internal organs, and some rare cases of utter immobility of the uterus in persons of more favorable stature. (In most of such cases the infecting agents are still present and more or less virulent.)

2. Descensus uteri of more than the first degree, and other marked elongations of the sacro-uterine ligaments.

4. Stiffly retroflexed uteri with a large fundus, either from metritis or from fibroids, present too much weight posterior to a line joining the points of origin of the round ligaments to be secured in anteversion permanently by dealing with these ligaments alone. Fortunately these cases are mostly well advanced in the child-bearing period of their life, and they either retain no practical capacity for conception or they are quite willing to surrender it. When a cure is aimed at in such cases they should be treated with thorough vaginal plastics, supplemented by a firm direct ventrofixation of the uterus; while, at the same time, they should be made sterile, when at all necessary, by exsecting the tubes from the uterine cornua and removing them without the ovaries when the latter are fairly normal or can be resected.

TECHNIQUE.—This is an exceedingly important subject, not simply because the operation in general has been unjustly blamed by not a few men because the finding of the ligaments seemed too difficult or uncertain to them, but because some important feature in the final results depends upon a judicious choice and careful execution of every single step in the operation. We will consider it under several heads:

1. *Preliminary Requirements for Success.*—(a) A reasonably accurate pelvic diagnosis, in addition to a general one, must be previously made by external palpation, by vagino-abdominal and by recto-vagino-abdominal bimanual palpation, with the patient in most suitable attire and position and with the bladder and intestines empty. Not merely the general topography as to the position, size, mobility, shape, consistence, and tenderness of each organ should be ascertained as far as possible, but, above all things, sufficient assurance must be obtained that, aside from the adhesions, there are no accumulations of pus or other infectious matters present. In cases where this point remains in doubt it is a good practice to make the patient lie down for from one to two weeks and use two or three hot-water vaginal douches daily, of thirty minutes each, in the dorsal position; to apply extensive external fomentations, and administer suitable saline laxatives. Many suspicious tender points and swellings will then disappear, and if immovable aggregations or swellings retain their former exquisite tenderness the inguinal route should not be chosen.

(b) Investigation of the renal functions; emptying of the intestinal canal; preparatory cleansing treatment of skin in the inguinal regions and of the vagina during forty-eight hours' previous recumbency, and a curettement as the first act of the operation, should all be attended to for this as for any similar celiotomy.

2. *Making the Wound and Drawing Out the Round Ligament.*—An incision extending in depth down to the aponeurosis of the external abdominal oblique muscle is made, begin-

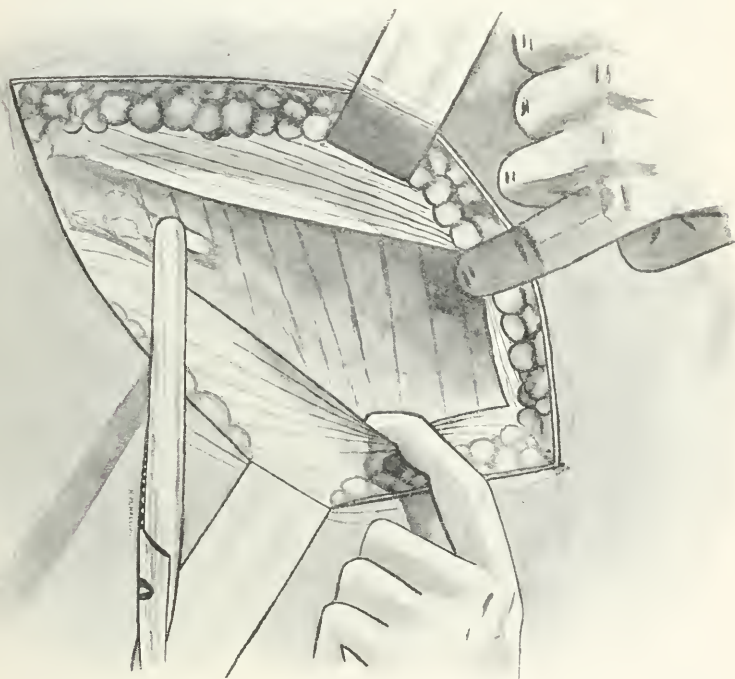


FIG. 1.

ning at the spine of the pubis and extending upward and outward, 5 to 7 centimetres parallel to Poupart's ligament and about 1 to $1\frac{1}{2}$ centimetres above it. The external abdominal ring is made to appear distinctly by rubbing the aponeurosis with a gauze sponge. The circular fibres at the outer acute angle of this ring are cut by a small nicking incision, and then all cutting ceases. The bunch of fat which usually fills the external ring, and which, as a most valuable guide, contains some terminal filaments of the round ligaments, is caught in a forceps and drawn upon, while the wound in the aponeurosis is

always made solely by splitting it with the fingers, as shown in Fig. 1. Its severed edges are then included in the grasp of a retractor on each side. The round ligament, whose end is usually included with the fat or areolar tissue in the forceps, is now isolated from the posterior wall and floor of the inguinal canal and from the part of the internal oblique muscle which normally should originate from the outer half of Poupart's ligament and pass in front of the round ligament in an upward and inward direction. The round ligament always becomes partly frayed out into these muscular walls of the inguinal canal, from which it must be separated bluntly with fingers or forceps as far as possible, when the attached and surrounding peritoneum will be drawn out with it as a cone-shaped investment, chiefly on its outer and upper side. In order to secure an opening with distinct margins in this peritoneal fold for the future intraperitoneal manipulation, it is best to seize and hold it with a forceps in a direction from the anterior superior spine of the ileum, and to incise this fold between the ligament and the forceps with scissors. With the aid of an occasional scissors clip on either side, this peritoneal funnel is stripped down upon the ligament in such a manner as to allow the ligament to remain reinforced with that strip of peritoneum from the anterior blade or surface of the broad ligament to which it is always intimately attached. This process of liberating the round from the broad ligament is continued until traction upon the former is felt, by the finger introduced into the abdomen, to draw quite directly upon the fundus uteri and to bring it into contact with the anterior abdominal wall.

In about five per cent of all cases the round ligament appears to be completely frayed out in the inguinal canal and not to reach the external ring at all. Then it is most advisable to seize a bundle of the soft muscular structures at the inner margin of the internal ring and make traction upon it, while the finger of an assistant placed against the vaginal cervix observes whether a due motion is imparted to the uterus. When this is not the case, another grasp of muscles is taken and tried until the ligament is known to be included, and it is then isolated bluntly from the muscular fibres at the internal inguinal ring. In rare cases of anomalous distribution this method also fails. Then it is best to tease the muscular and subserous tissues apart down to the peritoneum, to incise a fold of this, and to introduce the index finger to the origin of the round ligament and tube. Guided by this finger, a forceps

can be caught upon the upper edge of the broad ligament, with which the parts are drawn up and made more accessible. The round ligament can then be found in its place in the broad ligament, from one to three centimetres anteriorly and below the tube, when the internal inguinal ring has been stretched. It will be noticed that throughout either of these procedures no muscle or aponeurotic fibres have been severed in continuity, but simply contiguity, and that, when allowed to do so, they will fall back to their respective places again.

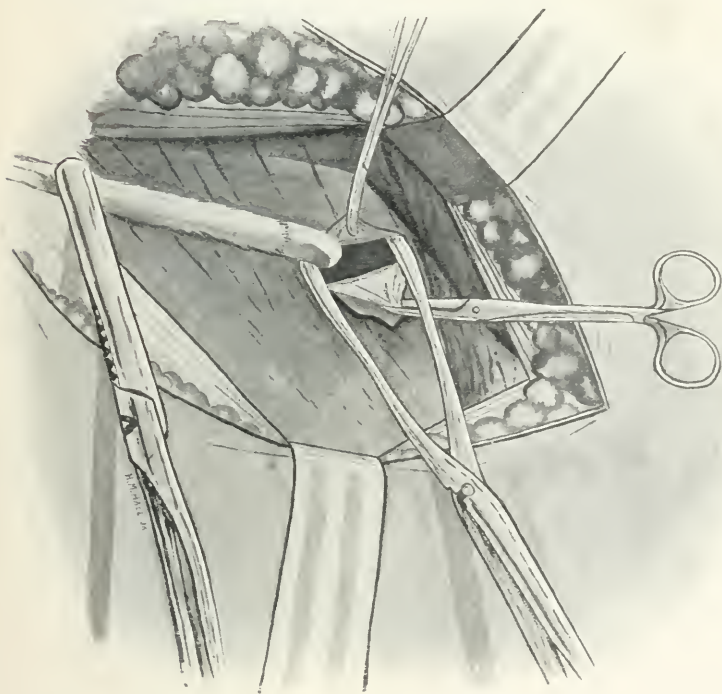


FIG. 2.

3. *The Intra-abdominal Work.*—Sufficient access to the abdomen and pelvis to accomplish this is obtained entirely by harmlessly dilating the internal inguinal ring of each side with pedicle or lithotomy forceps (see Fig. 2), and holding it open when necessary with a small retractor in an upward and inward direction. Through this aperture an index finger (in rare cases in conjunction with the middle finger) can be made to reach across the entire posterior surface of the uterus to the origin of the broad ligament of the opposite side, and down

nearly to the bottom of Douglas' cul-de-sac. From the fundus it passes readily along the under-surface of the tube to the ovary and liberates the uterus and the appendages, with all needed facility, from all adhesions to stationary surfaces. When these are marked, or when the organs are adherent to movable structures, it is advisable to steady the uterus with two fingers of the other hand upon the cervix in the vagina, to prevent the fundus from dodging the finger inside of the pelvis. In the most difficult and rare cases this holding of the uterus can be done more effectually and also harmlessly after dilatation and curettement by means of a blunt dilating sound, size 14 to 16 English, of such a length and uniform curve throughout as to form an arc of about one-quarter of a circle whose diameter is about 45 centimetres long. With such a sound, held by the fingers in the vagina, the fundus uteri can be brought forward and held sufficiently to suit the purposes of the internal finger, without stretching the sacro-uterine ligaments (as sounds with straight shafts do) harmfully, which would tend to defeat the successful result of the main operation. When firm, denuded surfaces are made by severing adhesions that are likely to bleed, or when ovarian cystic follicles break down under the finger, a safe strip of sterile gauze is introduced, and packed when necessary, while the tube and ovary are drawn out and receive their treatment, if any be indicated. The tube can generally be made to appear in the inguinal opening easily with the finger; or the latter may be assisted by a small forceps caught on the peritoneal covering of the tube. As the abdominal end of the tube is drawn out the ovary also appears, following the lead of the ovarian fimbria, and it either slips out voluntarily or is assisted in emerging by means of the lithotomy forceps or by the finger ring or loop in the handle of one of its blades, which is placed over or around it like a tonsillotome on a tonsil. When out, the ovary is prevented from slipping back by the fingers or by a slender forceps caught harmlessly on the firm tendinous utero-ovarian ligament. According to the indications, gynecological surgery of the highest order may now be done upon these organs. The ovary may be cauterized, or it may be resected (which is far preferable) by curetting, enucleating, or excising diseased portions, trimming the edges of the resulting wound, and then closing it with continued sutures of fine catgut, placed in two tiers, one deep to control the bleeding and one superficially to coaptate the edges (see Fig. 3). Salpingostomy may be done; and the

ampulla of the tube, together with the ovary, may be secured in their normal lateral and sheltered location a little beneath the innominate line, when they were pathologically descended (prolapsed), by shortening their lateral suspensory ligament. For when the ovary was really so displaced its attachments will allow it to be drawn not merely into the inguinal wound, but also further out in advance of it. This suspensory ligament, which is common to both infundibulum of the tube and the ovary, may then be shortened by passing a fine, full-curved

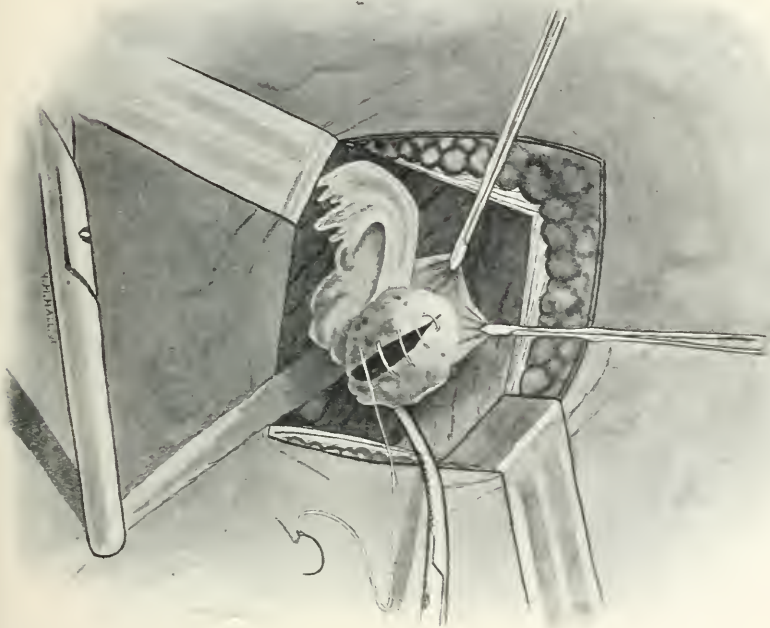


FIG. 3.

needle, armed with fine silk, through the web that spans between the end of the tube and the ovary, about midway between the two, and a half-centimetre from its edge, and then passing it through this ligament at a similar distance from its free border and at a point as low down in the abdominal opening as can be reached by depressing the surrounding abdominal wall, and uniting the two edges so seized by tying a knot. Sometimes it is well to add another similar stitch. Or, finally, if the ovary is hopelessly diseased throughout, both tube and ovary are readily removed by grasping them, well

drawn out, in a pedicle forceps with curved jaws, and transfixing the pedicle beneath the forceps with a double catgut thread which ties the pedicle in one or two parts, as desired (see Fig. 4).

4. *Closure of the Wound and Anchoring of the Round Ligament.*—This is done by means of four layers of mostly continuous catgut sutures. First a purse-string suture is passed through the edges of the round ligament, the peritoneum, and the dilated inguinal ring, and is then tied. The

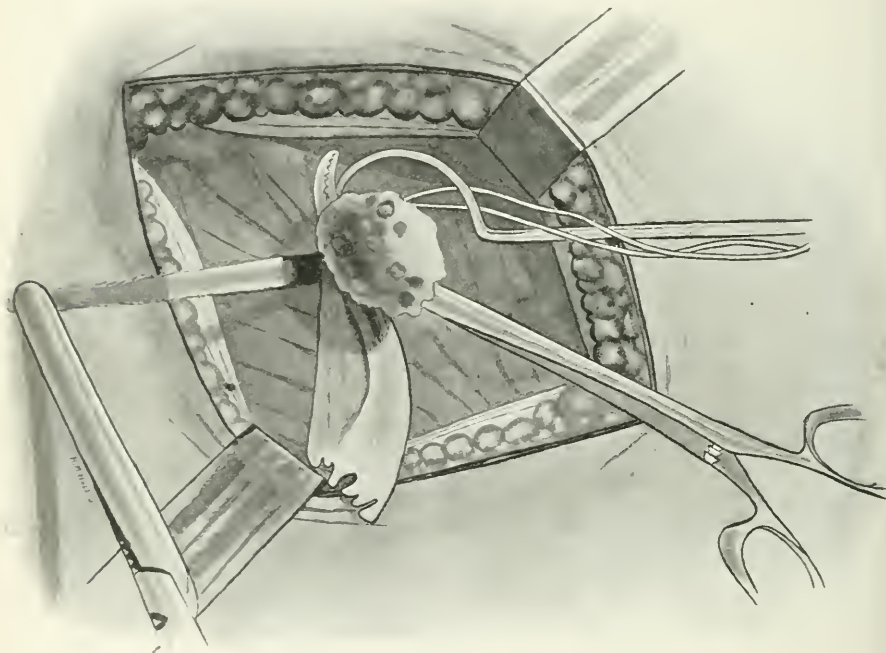


FIG. 4.

attachment to the round ligament is made as far down toward the uterus as possible, so that if this structure subsequently recedes it will draw a cone of peritoneum inward and deflect intra-abdominal pressure from the region of the previous opening.

The second tier is the most important, and is made preferably with a double thread of medium-sized catgut, so that if one thread gives way prematurely there will be another one on duty. The wound is held well open, and the internal oblique muscle is broadly exposed by grasping the upper split

edge of the aponeurosis of the external oblique muscle with the skin and fat in a retractor drawn upward and inward, while its lower edge is retracted and the under or posterior surface of Poupart's ligament is turned upward and made accessible for suturing by a larger pedicle forceps caught upon the lower split edge of the aponeurosis and then turned over downward, as shown in Fig. 5. With a full curved needle, armed with the double thread, a continuous suture is begun at a point two to three centimetres upward and outward from the previously

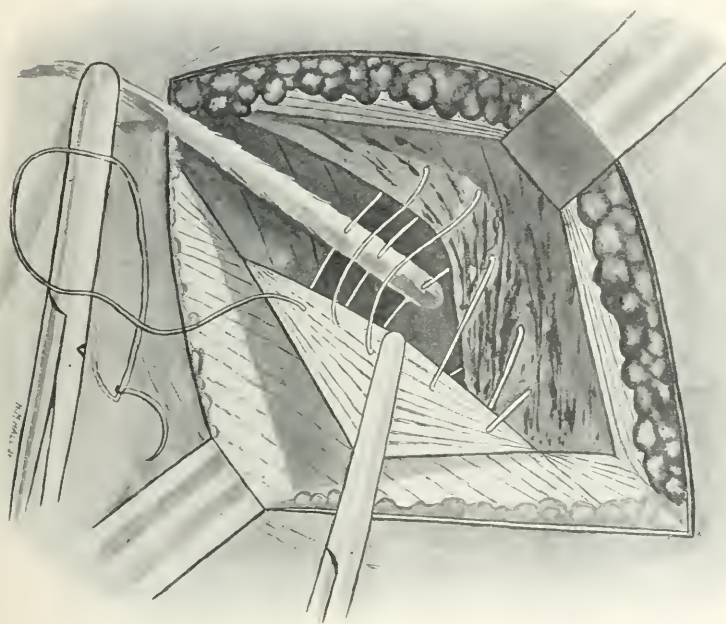


FIG. 5

dilated internal ring, by seizing a mass of the internal oblique muscle of the size of a finger and then passing the needle through the exposed fold of the posterior surface of Poupart's ligament as far laterally as possible. When this stitch has been tied, four or five similar ones are placed from there continuously inward and downward. The first one of these is also placed laterally from the round ligament, and serves, together with the initial one, to fortify the region of the internal ring with a formidable mass of internal oblique muscle gathered over it and united to Poupart's ligament. The next three

or four of these continuous sutures each gather up a similar though a little smaller roll of muscle tissue from the internal oblique and transversalis, then pass through about the centre of the round ligament, and unite these to the exposed posterior surface of Poupart's ligament in the same manner. Each alternate one of these sutures is anchored by passing it beneath the thread of the previous one, and the last one is tied at a point corresponding to the outer angle of the external inguinal ring. This second tier of sutures accomplishes three

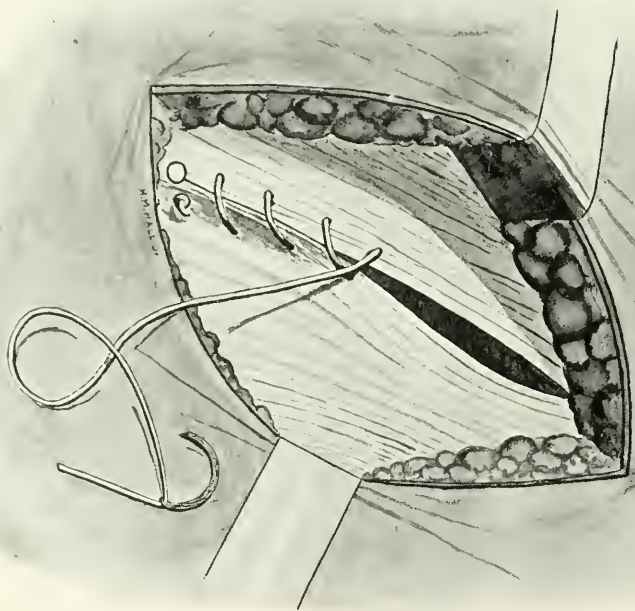


FIG. 6.

very important things: (a) It anchors the round ligament broadly against the posterior surface of Poupart's ligament—an immovable object. (b) This round ligament is cushioned upon a bed of elastic and vascular muscle tissue at every stitch, which guards it from strangulation. (c) Hernia is made practically impossible by the mass of chiefly internal oblique muscle that is united also to the posterior surface of Poupart's ligament, and thereby strengthens the region of the internal inguinal ring and firmly closes the inguinal canal.

The third tier consists in reuniting the edges of cleft wound

in the aponeurosis of the external oblique muscle with thin catgut (see Fig. 6), because they have already returned into apposition upon removing all retractors at this stage of the work.

The fourth tier of sutures, usually of silkworm gut, and either continuous or interrupted, closes the opening in the skin and subcutaneous tissue.

A few stitches in each of these layers are made to embrace a little of the previous stratum, so as to avoid "dead spaces," and no drainage is used.

CASUISTIC.—The writer has been a natural enemy of all the fixation and "artificial ligament" operations in this connection, and has practised the old simple Alexander operation for nearly ten years, and, in connection with his innovation of inguinal celiotomy, since September 18, 1893, when he removed a diseased tube and ovary through the dilated internal inguinal ring for the first time. And he deserves censure for having regarded it, during the first half of his experience with it, as only a minor procedure and as probably of too little importance to warrant the labor of recording all his earlier cases. But, for allowing a knowledge of the final results in these cases to be partly lost, his conscience smote him effectually when the evils of the "fixation" (pathological) surgery for retroversion and retroflexion of the uterus came to light.

Previous to January 1, 1897, he performed the old simple Alexander operation, with minor modifications, upon at least 75 cases, and in combination with inguinal celiotomy upon at least 25 cases more. As not all of these were systematically recorded and followed up afterward, the writer has merely drawn some general lessons from his experience with them which coincide with principles stated at the beginning of this paper. And as 19 cases of the present year (1899) are too recent for use, he will report only 49 consecutive cases operated upon during 1897 and 1898, when all cases were recorded in detail. All cases except 2 in the table on pages 600 to 603 have been followed up and either examined or detailed reports received from them.

Of these 49 cases, 20 (Nos. 1, 3, 7, 10, 12, 13, 17, 20, 23, 24, 25, 27, 30, 34, 36, 38, 42, 43, 45, and 48) presented actual organic adhesions of the uterus or of the tube and ovary of one or both sides, that were separated by the finger and tactile sense alone. In 14 cases (Nos. 4, 8, 11, 15, 16, 19, 21, 22, 28, 32, 33, 46, 47, 49) adhesion of the uterus was simulated.

Name, age, and para.	Anatomical diagnosis.	Nature of operations.	Unmarried and pregnancy.	Present position of organs.	Other disorders present now.	Present subjective condition.
1 Mrs. R., 46 years, multipara.	Metritis; retroversion; uterus and adnexa adherent.	Curettement. Schröder's cervix operation. Alexander's operation Left ovary suspended. January 8, 1897.	No pregnancy.	Thorough anteversion.	Renal insufficiency.	Good health after. About eight months post operationem was re-infectd with gonorrhœa. Cannot find patient.
2 Miss S., 17 years.	Movable retroversion.	Curettement and Alexander's operation. January 21, 1897.	?	?	?	
3 Mrs. M., 46 years, multipara.	Metritis; retroversion; adherent uterus and adnexa.	Curettement. Alexander's operation. January 30, 1897.	No pregnancy.	Very good.		Pain in left ovary for several months. Good health after six months. Works hard now.
4 Mrs. G., 33 years, multipara.	Retroversion, adherent by cohesion.	Curettement. Alexander's operation. Intrapelvic, infravaginal perineorrhaphy. February 23, 1897.	"	Position good six months ago and health good.		Health very good now; working hard. Had pain in one ovary for three to four months.
5 Miss F. F., 21 years, virgin.	Retroversion, movable.	Curettement and Alexander's operation. March 12, 1897.	Unmarried.	Position very good. Cyst size of hen's egg on left ovary.		General health very good. Some leucorrhœa. Is engaged and has had coitus.
6 Mrs. J. B., 22 years, nullipara.	"	Curettement. Alexander's operation. Resection of left ovary. Salpingotomy. March 20, 1897.	?	?	?	Patient not found.
7 Mrs. M., 23 years, multipara.	Retroversion with adherent adnexa.	Curettement. Alexander's operation. Resection of left ovary. Schröder's cervix operation. Posterior colporrhaphy and perineorrhaphy. April 2, 1897.				Patient died in sixty hours from complication of diabetes mellitus, not previously discovered owing to an interchange of samples of urine.
8 Miss P., 33 years, nullipara.	Retroversion, adherent by cohesion; right inguinal canal was a cicatrix.	Curettement. Alexander's operation. Right round ligament traced from within outward. April 10, 1897.	Unmarried.	Position assumed to be good from her general good health.		Health good. Holds a position requiring regular attendance.
9 Mrs. K., 34 years, multipara.	Retroversion, movable.	Curettement. Alexander's operation. Adnexa palpated and inspected. April 21, 1897.	No pregnancy.	Position and condition of all organs good.		General health very good. A former constant headache is nearly gone. Works hard.
10 Mrs. H., 27 years, multipara.	Retroversion with adherent adnexa.	Curettement. Alexander's operation. Left tube and ovary removed. Suspension of right ovary. Intrapelvic, infravaginal perineorrhaphy. Operation for hemorrhoids. April 24, 1897.		Position and condition of all organs very good.		General health very good. First six months some trouble from rectum.
11 Mrs. A., 22 years, Ipapa.	Retroversion, adherent by cohesion; cystic descended left ovary.	Curettement. Alexander's operation Resection of left ovary. April 26, 1897.	Child 3 months.	Position of uterus and well involution.		Pain in one ovary for about four months. Married. Became well during gestation.
12 Mrs. B., 29 years, nullipara.	Retroversion, adherent by cohesion; descended cystic left ovary.	Curettement. Alexander's operation. Removal of left ovary and tube. April 27, 1897.	No pregnancy.	Position very good.		General health excellent. Former constant headache all gone.
13 Mrs. W., 30 years, multipara.	Retroversion with adherent adnexa; cystic left ovary.	Curettement. Alexander's operation. Large ovary and tube removed. Intrapelvic, infravaginal perineorrhaphy. May 11, 1897.	"	Operation for vesicocèle eight months ago. Position of organs now good.	Has renal insufficiency and enterocolitis. Is hysterical.	Attends to her housework and grows very fat but complains of various discomforts.

14	Mrs. K., 27 years, 1para.	Retroversion, ad- herent by cohesion; cystic descended left ovary.	Curettement. Alexander's operation. August 28, 1897.	No preg- nancy.	Position and con- dition very good.	.....	Very good health. Is working hard. Had some pain from one ovary for first two to three months.
15	Miss H., 19 years, virgin.	Retroversion, ad- herent by cohesion; cystic descended left ovary.	Curettement. Alexander's operation. Resection and suspension of left ovary. September 29, 1897.	Unmar- ried.	Position good, but has a cyst size of hen's egg on right ovary.	.....	Health very good, but recently some pain in right side.
16	Mrs. H., 27 years, multipara.	Retroversion, ad- herent by cohesion; descended left ova- ry.	Curettement. Alexander's operation. Resection and suspension of left ovary. Operation for hemorrhoids. September 29, 1897.	Abortion, induced.	Position and con- dition very good.	.....	Good general health. Working hard.
17	Mrs. H., 22 years, multipara.	Retroversion, uterus adherent.	Curettement. Alexander's operation. Resection and suspension of left ovary. Perineorrhaphy. October 29, 1897.	No preg- nancy.	Position and con- dition of organs good.	.....	Good health. Doing all her house- work.
18	Mrs. K., 2½ years, multipara.	Retroversion, mov- able.	Curettement. Alexander's operation. Resection of left ovary. Operation for hemorrhoids. November 1, 1897.	"	Uterus antevert- ed, but not so completely. Pessary for four months af- ter operation	.....	Health "very good," she says. Working all day in bakery.
19	Mrs. X., 21 years, multipara	Retroversion, ad- herent by cohesion; descended ovary.	Curettement. Alexander's operation. Resection of right ovary and suspen- sion. December 1, 1897.	Pregnant two months.	Position and con- dition of all or- gans good. Wore pessary for four months after operation.	.....	Very good general health. Mar- ried several months.
20	Mrs. B., 42 years, multipara.	Retroverted and ad- herent uterus and ap- pendages; descend- ed right ovary.	Curettement. Alexander's operation. Schröder's cervix operation. Resec- tion and suspension of right ovary. January 31, 1898.	No preg- nancy.	Position and con- dition of all the organs very good.	.....	Very good health. Has completely recovered from severe neuralgias and hysterio-epilepsy.
21	Mrs. S., 40 years, multipara	Retroversion, ad- herent by cohesion; metritis after abor- tion.	Curettement. Alexander's operation. Intrapelvic, infravaginal perimeor- rhaphy. February 2, 1898.	"	Position and con- dition of organs good.	.....	General health good. Does all her housework.
22	Mrs. W., 43 years, multipara.	Retroversion, ad- herent by cohesion.	Curettement. Alexander's operation. Adnexa explored. February 2, 1897.	"	Position of or- gans assumed to be good from general health.	All pelvic func- tions normal, but has catar- rhal gastritis	Menses normal. No leucorrhea nor pains, but is anemic and has dys- pepsia.
23	Mrs. K., 36 years, multipara	Retroversion; uterus and adnexa severely adherent.	Curettement. Alexander's operation. Removal of left tubo-ovarian septic conglomerate with pus. February 21, 1898.	"	Position and con- dition of all or- gans good.	.....	General health very good, aside from an impending hernia since sliding down an entire icy stair- way three weeks after operation.
24	Mrs. S., 25 years, multipara.	Retroversion, mov- able.	Curettement. Alexander's operation. Resection of left ovary. Operation for hemorrhoids. February 28, 1898	Normal gestation and birth. Child now 2 weeks old.	Uterus antevert- ed and well up and forward, not fully re- duced in size.	.....	Normal puerperal period and condi- tion.
25	Miss M., 37 years, virgin.	Retroversion; ad- herent adnexa; de- scended ovaries.	Curettement. Alexander's operation. Right ovary removed, left ovary re- sected. Operation for hemorrhoids. March 18, 1898.	Unmar- ried.	Position and con- dition of organs good.	Has floating kidney and probably cal- culus.	Health in general very fair, but has attacks of colicky pains in region of right kidney.

Name, age, and para.	Anatomical diagnosis.	Nature of operations.	Unmarried and pregnancy.	Present position of organs.	Other disorders present now.	Present subjective condition.
26 Mrs. B., 40 years, multipara.	Retroversion, movable.	Curettement. Schröder's cervix operation. Alexander's operation. Intrapelvic, infravaginal perineorrhaphy. March 17, 1898.	No pregnancy.	Position and condition of all organs normal.	.....	Very good health.
27 Mrs. O., 27 years, multipara.	Retroversion; adherent uterus; severe metritis, chronic.	Curettement. Alexander's operation. Intrapelvic, infravaginal perineorrhaphy. March 17, 1898.	"	Position of organs very good.	.....	Chronic metritis persisted in part, and intrauterine and galvanic local treatment needed. Good health now.
28 Miss M., 27 years, nullipara	Retroversion, adherent by cohesion.	Curettement. Alexander's operation. Removal of right ovary, suspension of left ovary. Left salpingostomy. April 4, 1898.	Abortion induced at three months.	Position of organs good.	.....	Has coitus. General health good. Working hard as a servant girl.
29 Mrs. W., 32 years, multipara	Retroversion, movable; lacerated perineum and hemorrhage.	Curettement. Alexander's operation. Intrapelvic, infravaginal perineorrhaphy. Operation for hemorrhoids. April 6, 1898.	Pregnant normally for eight months.	No traction or any other pains.	.....	In very good health and spirits for a pregnant woman.
30 Mrs. W., 50 years, multipara.	Retroversion with rectocele and descensus uteri, second degree; adherent adnexa.	Curettement. Alexander's operation. Removal of left ovary and tube. Suspension of right ovary. Intrapelvic, infravaginal perineorrhaphy. April 16, 1898.	No pregnancy.	Uterus anteverted, but a vesicocele has grown and drags on cervix. Operated for this recently.	.....	General health now good. Waits upon a bar and lunch counter.
31 Miss D., 24 years, virgin.	Retroversion, movable; descended enlarged ovaries.	Curettement. Alexander's operation. Extensive resection of both large cystic ovaries. Suspension of right ovary. April 26, 1898.	Unmarried.	Position assumed to be good from good position three months after operation, and improvement in pelvic symptoms.	.....	Has neuralgic pains, nervousness, and hysteria.
32 Mrs. B., 27 years, multipara	Retroversion, adherent by cohesion; pathologic cervix	Curettement. Schröder's cervix operation. Alexander's operation. Removed right tube and ovary. Left salpingostomy. May 14, 1898.	No pregnancy.	Position of organs good.	Husband has gonorrhea and has given it to wife	General health good; otherwise works hard.
33 Mrs. M., 34 years, multipara.	Retroversion, adherent by cohesion; lacerated perineum.	Curettement. Alexander's operation. Left tube and ovary removed, right ovary suspended. Perineorrhaphy. May 17, 1898.	"	Position and condition good.	.....	Former severe and frequent headache entirely gone. Good health.
34 Mrs. G., 37 years, multipara.	Retroversion; adnexa adherent.	Curettement. Alexander's operation. Left ovary removed, right ovary resected and suspended. Right salpingostomy. May 18, 1898.	"	Position of organs good.	.....	Has renal insufficiency, dilated stomach, and enteroptosis. Neuralgic pains in left chest.
35 Miss P., 29 years, virgin.	Retroversion, movable; descended left ovary; metritis.	Curettement. Alexander's operation. Right ovary resected, left ovary suspended. May 24, 1898.	Unmarried.	Position and condition of organs good.	.....	Very good health. Working hard.
36 Miss L., 19 years, virgin.	Retroversion; adherent adnexa.	Curettement. Alexander's operation. Removal of left ovary and tube. Resection and suspension of right	"	Position assumed to be good from good general health.	.....	Very good health; not so for first three months.

37	Mrs. L., 26 years, nullipara.	Retroversion, mov- able; pregnant three months.	Alexander's operation alone. June 24, 1893.	Normal gestation and labor. Child 5 months.	Position of or- gans very good.	.....	General health very good.
38	Mrs. F., 28 years, multipara.	Retroversion; adhe- rent adnexa; lacer- ated cervix.	Curettement. Schröder's cervix ope- ration. Alexander's operation. Left ovary resected and suspended. In- travaginal, intravaginal perineor- rhaphy. July 2, 1898.	No preg- nancy.	Position and con- dition of all or- gans good.	.....	General health good. Working hard daily.
39	Miss S., 24 years, nullipara.	Retroversion, mov- able; cystic right ova- ry; right inguinal and femoral hernia.	Curettement. Alexander's operation. Resection of right ovary. Radical operation for both hernia from the same incision. July 7, 1898.	Unmar- ried.	Position of or- gans good.	.....	Good general health. Some leu- corrhea.
40	Miss J., 26 years, virgin.	Retroversion; mov- able cystic descend- ed left ovary.	Curettement. Alexander's operation and suspension of both ovaries and sus- pension of left ovary. July 15, 1898.	"	Position and con- dition of organs good.	Had much anxiety about financial losses.	Health good now, but afflicted first six months with former melan- cholia, now overcome.
41	Miss S., 22 years, virgin.	Retroversion, mov- able; descended cys- tic left ovary; ex- treme hemorrhoids.	Curettement. Alexander's operation. Resection of both ovaries. Exten- sive operation for hemorrhoids. August 7, 1898.	"	Position and con- dition of all or- gans good.	.....	General health very good. Former extreme dyspepsia gone, and ir- regular menstruation now regu- lar.
42	Mrs. L., 40 years, multipara.	Retroversion; adhe- rent adnexa; recto- cele; hemorrhoids; lacerated perineum.	Curettement. Alexander's operation. Amputation of cervix. Resection of left ovary, and salpingostomy. Perineorrhaphy and operation for hemorrhoids. August 24, 1898.	No preg- nancy.	Position and con- dition of organs good.	.....	Good pelvic and general health.
43	Mrs. R., 32 years, multipara.	Retroversion; adhe- rent uterus and ad- nexa; pathologic cervix laceration.	Curettement. Schröder's cervix ope- ration. Alexander's operation. Re- moval of right tube and ovary. August 26, 1898.	"	Position of all organs good.	.....	A moderate endometritis following influenza and pneumonia three months ago. Anemic. Otherwise well.
44	Miss S., 18 years, virgin.	Retroversion, mov- able; descended cys- tic left ovary.	Curettement. Alexander's operation Resection of both ovaries. Right round ligament traced from within outward. October 14, 1898.	Unmar- ried.	Position and con- dition of organs good.	.....	Some pain in one ovary for four months. Subsidied spontaneously. Pelvic and general health good now.
45	Mrs. H., 29 years, multipara.	Retroversion; adhe- rent uterus and ad- nexa.	Curettement. Alexander's operation. Removal of left tube and ovary. Right salpingostomy. October 22, 1898.	No preg- nancy.	Position of or- gans assumed to be right from report of good health.	.....	General and pelvic health good now, but had pain in remaining ovary for three to four months.
46	Miss W., 28 years, virgin.	Retroversion, adhe- rent by cohesions; hemorrhoids.	Curettement. Alexander's operation. Removal of left tube and ovary. Right ovary resected. Operation for hemorrhoids. October 29, 1898.	Unmar- ried.	Position and con- dition of organs good.	.....	Had pain in remaining ovary for three months. General and pel- vic health good now.
47	Miss S., 23 years, virgin.	Retroversion, adhe- rent by cohesions; extremely descend- ed cystic left ovary.	Curettement. Alexander's operation. Resection of left ovary. Right ovary palpated. November 21, 1898.	"	Position of or- gans good, but has meritis and right oophori- tis.	Infection at operation oc- curred.	Patient unable for duty. Pain from right ovary. Leucorrhea. Se- vere dyspepsia. Anemia. Hys- teria.
48	Mrs. W., 30 years, multipara.	Retroversion; uterus and adnexa adhe- rent; descended cys- tic left ovary.	Curettement. Alexander's operation. Removal of right ovary and tube. Resection of right ovary and tube. November 21, 1898.	No preg- nancy.	Position and con- dition of organs good.	.....	Pelvic and general health good now, but had pain in right ovary for six months.
49	Miss H., 21 years, virgin.	Retroversion, adhe- rent by cohesions.	Curettement. Alexander's operation. Removal of left small cirrhotic ovary. Resection and suspension of right cystic ovary.	Unmar- ried.	Position and con- dition of organs good.	.....	General and pelvic health good.

These were examples of what Sielski⁸ calls fixation by cohesion of the posterior surface of the uterus in the cul-de-sac of Douglas. The act of replacing them before operation was so difficult that adhesions were assumed to be present; and still when the finger came into actual contact with the parts intra-abdominally no real adhesions were found. The remaining 15 cases (Nos. 2, 5, 6, 9, 14, 18, 24, 26, 29, 35, 37, 39, 40, 41, 44) were freely movable. In only 12 of the 49 cases were the adnexa really healthy so that no surgical treatment of them was deemed necessary, aside from suspension in case No. 1, after thorough examination of them by palpation or inspection or both. In 11 cases (Nos. 14, 19, 20, 34, 35, 36, 39, 46, 47, 48, and 49) the right ovary was resected. In 11 cases (6, 7, 11, 15, 16, 17, 18, 24, 25, 38, 42) the left ovary was resected. In 4 cases (Nos. 31, 40, 41, and 43) both ovaries were resected. In 5 cases (Nos. 3, 25, 28, 32, 43) the right ovary and tube were removed. In 12 cases (10, 12, 13, 23, 30, 33, 34, 36, 45, 46, 48, and 49) the left ovary and tube were removed. In 9 cases (10, 14, 20, 30, 31, 33, 34, 36, and 49) the right ovary was suspended, and in 10 cases (Nos. 1, 15, 16, 17, 26, 28, 35, 38, 40, and 48) the left ovary was suspended, by shortening the corresponding lateral and upward suspensory ligament that normally suspends both the ovary and ampulla of the tube. In 6 cases salpingostomy of one side was performed.

Associated Operations.—1. Curettage was done as the first act in every case except one (37) that was pregnant two and one-half months.

2. For cicatricial indurations and degenerations following lacerations of the cervix uteri, the Schröder cervix operation, suitably modified to suit the indications, was performed upon 8 patients (1, 7, 20, 26, 32, 38, 42, 43) as the second act.

3. The writer's operation for restoration of the pelvic floor and perineum (described as "intrapelvic infravaginal perineorrhaphy without loss of tissue," *Medicine*, July, 1897) was done upon 14 cases (Nos. 4, 7, 10, 13, 17, 21, 26, 29, 30, 33, 37, 38, 42, and 43), always after the Alexander operation was completed. And hemorrhoids were removed as the final act, usually with clamp and cautery, in 9 cases (Nos. 10, 17, 18, 24, 25, 29, 41, 42, and 46). In Case 39 a fully developed inguinal and an incipient femoral hernia of the right side were successfully disposed of by the one external incision, through which the corresponding ovary was resected and the round ligament shortened. In several other cases a patulous condition of the

inguinal canal and external ring, with an incomplete hernia in some of them, was obliterated as a matter of course, without much special effort, by this operation.

RESULTS.—1. *Practically no mortality.* In a minimum estimate of at least 170 cases of the Alexander operation, nearly all of which were combined with one or more of the above associated operations, and in about 95 of which bilateral inguinal celiotomy was also made, the writer has not had any fatal case due to the surgical treatment. And it may be mentioned that he has removed a tubal pregnancy in one case, a unilateral pyosalpinx in another, and a bilateral tubercular pyosalpinx in a third case by this route, the last two without rupture—not because he would recommend this, but because he either neglected or failed to make sufficiently accurate diagnoses in those cases. One patient (No. 7) with diabetes mellitus, who should never have been anesthetized, died after a prolonged anesthetic and formidable series of operations. owing to a serious mistake by which the resident physician received the urine of another patient for examination, and the diabetes of the real patient was not discovered until some hours after the operation.

Again, the rate of morbidity during the after-treatment, as determined by the frequency of a rapid pulse, rise of temperature, intense thirst or pain, embarrassed or delayed action of the intestines, and severe and prolonged vomiting, is very much less than in cases of median ventral celiotomy in which the intra-abdominal work of the same grade only has been performed.

2. *Hernia does not follow this operation under ordinary normal conditions.* In the writer's entire experience with this combination of surgical procedures he has no complete hernia to record as a sequel. But one impending or incomplete hernia exists, in Case 23 of the above collection, which is ascribed by the patient, probably correctly, to slipping and sliding down the whole length of an icy stairway upon her buttocks five weeks after the operation, when she felt something give way, and a pain following, at the site of the recent operation on the left side, through which opening a tubo-ovarian pyosalpinx that was very adherent to the anterior surface of the uterus was removed.

3. This operation does not create obstacles to pregnancy and labor, and secures the uterus in anteversion naturally and *permanently*, even when these phenomenal functions of the

organ supervene. Of the 47 cases (out of the above 49) that could be followed, 15 have been unmarried since their operation. One case died (diabetes) and one was past the menopause, leaving 30 cases who had opportunity for conception. Of these 30, 7 became pregnant during the average period of somewhat less than eighteen months. Two of these confessed to having an abortion procured upon themselves at two and three months respectively.

One patient is pregnant three months and another eight months; and three of this series and one of a former period have given birth normally, after a perfectly healthy and complete gestation period, to an equal number of children, whose average age is now (July 15, 1899) $3\frac{1}{2}$ months; and the uterus in each mother is in good normal anteversion and well involuted, as shown by very recent examinations.

In Stocker's observation^a a total number of 8 cases were available for examination who had passed through a normal pregnancy and labor—two of them twice—after an Alexander operation, and in each case the uterus was found in normal position. Again, of Edebohls'¹ cases, 7 were thus examined after one, and some of them after two, normal pregnancies and deliveries, and the uterus found in anteversion.

Thus, 8 cases by Stocker, 7 by Edebohls, and 4 by the writer have passed the crucial test successfully and in a manner not equalled by any published cases after any of the "fixation" operations, by not creating obstacles to gestation and labor, and by the continuance of their good results after the intervention of these phenomena.

With and without intervening pregnancy, Edebohls reports the results of examinations in 115 out of 123 total cases of Alexander operation, after an average period of nearly seventeen months, and found 106 of these to be entirely successful.

Aside from four or five partial failures in his earliest experience with this operation, the writer has never known of any recurrence of retroversion in any of his last 125 cases, either with or without the test of pregnancy and labor; and, with the exception of three cases, none have had a pessary introduced, either, since their operation. Nor have any, aside from the one case of impending hernia above mentioned, been either inclined or compelled to wear supporting bandages after they resumed their occupations in from five to eight weeks after operation.

4. *The degree of health anatomically and subjectively is*

not only better after this than after any other surgical procedure for the same purpose, but also better than after any other gynecological operation of equal scope and gravity.

Referring to his tabulated cases, the writer can say that the operation was a complete success, as far as the position of the organs is concerned, in each of the 46 cases that could be observed (2 not being traced and 1 having died), as, after an average period of 17.99 months, no recurrence of retroversion or flexion has occurred in any of them. Five of these cases were not available for examination during the last six months, but they report their subjective condition (pelvic and general), and ability to follow their more or less taxing occupations, to be so good that from this and other circumstances the writer can vouch for the correct position of the uterus in their cases.

Of these 46 cases, two virgins, who had extreme retroversion and marked descensus of enlarged cystic ovaries with severe symptoms, are still disabled for regular duty. In one (No. 47) one ovary was resected and the other palpated and inspected. An infection occurred during the operation, so that all parts, including the endometrium, suppurated and high temperature prevailed a long time. She has more or less continuous pain from the right ovary, severe indigestion and vomiting after meals, anemia and hysteria, but is steadily improving.

The other one (No. 31) had no infection, but has a nervous organization, complains of various neuralgic pains, nervousness, some dysmenorrhea, and is hysterical.

Aside from these two subjective failures, the remaining 44 cases are able to attend to their regular duties completely, and can be counted as well persons anatomically and subjectively; for 40 of them are so actually, and the remaining 4 cases are merely uncomfortable from disorders that stand in no relation to the operation—as renal insufficiency; dilated stomach and enteroptosis; catarrhal gastritis; movable kidney with probable calculi; an ovarian cyst, size of a hen's egg, discovered after twenty-two months in 2 cases on ovaries that were deemed healthy at the time of operation and were not treated.

THE ADVANTAGES OF THIS OPERATION.—1. The chief source of evil in each case, the displacement of the uterus, is definitely cured by the use of the best means in the best way—the only way that does not harbor any features that are antagonistic to the interests of the uterus in pregnancy and labor, and that also stands the test of these phenomenal changes in the

uterus without permitting a recurrence of its former evil position.

2. Not merely the indications pertaining to the displaced uterus, but also those, of equal importance, pertaining to the adnexa, are fulfilled by relieving these most sensitive organs of worthless particles and degenerate conditions which have marred the results of the simple Alexander operation heretofore.

3. By this operation a large number of patients can be saved from the evils and permanent disadvantages of a full-fledged abdominal section, *i.e.*, the additional shock and danger from manipulation of viscera and exposure of peritoneal surfaces, the adhesion of intestinal parts to the inner surface of the wound with all that that implies, the greater mortality of ventral celiotomies (5 per cent according to Fehling's statistics), and the danger of ventral hernia in the scar.

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CONCERNING SOME OF THE FALLACIES OF DIPHTHERIA AND ANTITOXIN STATISTICS.

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DIPHTHERIA and its varying complications and sequelæ are indeed undeniable and often discouraging facts. And although the conceptions of diphtheria entertained and acted upon by not a few practitioners and knowing lay people are also facts, those conceptions lack the essential element of reality not infrequently. When judging as to the validity of antitoxin and diphtheria statistics, we should not lose sight of the character of the facts presented and the particular conception of diphtheria that is entertained by the writer or speaker. The facts of diphtheria are always real; the conceptions of the disease vary. We know a disease by the signs and symptoms it develops from start to finish. There may be nothing specific about any one particular sign or symptom, but there is in its entire *ensemble* of signs and symptoms in their varying groupings at various or different times, or at different localities at the same time.

The essential facts of diphtheria are: (1) an inflamed surface, usually of the throat, which develops (2) a pseudomembrane, (3) associated with more or less constitutional disturbances—fever, changed pulse, etc., etc.—and (4) localized bacterial activity and the play of toxins within the organism. With these facts the ingenuity of man constructs theories—conceptions—for purposes of explanation, and other practical conveniences and uses besides, often to justify his practice.

Among its important facts often forgotten or overlooked is its variability as to virulence and comparative mildness. This disease has been so mild and uncomplicated during some epidemics as to kill only two to five in a hundred of its victims; and again, at other times, it has annihilated ninety-five of every one hundred of those attacked. In England in 1855 diphtheria killed twenty of every million of the population.

Four years later—1859—five hundred and seventeen of every million of the population died of it.

Ever since diphtheria has been described it has been considered and divided into two classes or groups: (1) those cases that get well or are cured, and (2) those cases that die. The cases which get well are not a great cause of anxiety, but the cases that die are those that arouse our anxiety and make us feel sorry.

During the early nineties Behring, Roux, and their disciples promised to relieve our anxieties and do away with our sorrows if we would but use their antitoxin. Their remedy was characterized as being scientific—and who would not use a scientific remedy? The remedy was enthusiastically taken up by a very willing majority and applied even by many of a sceptical minority. It was called by not a few a most miraculous remedy. Have its claims been justified by events? A great many teachers, the great majority of health board officials, and innumerable practitioners say even to-day that events have justified the claims of the original promulgators of antitoxin for diphtheria. How do they prove their claims? Chiefly by the enumeration of authorities and statistics. Let us look at some statistics and see how this is done.

Let me premise by quoting from a former article of mine:¹ “In weighing and comparing the ‘antitoxin-in-diphtheria’ statistics of different antitoxin advocates, and those statistics with old-time non-antitoxinized diphtheria statistics, in all instances we should strive to be sure that unlike things and conceptions are not manipulated as though there were no existent differences and no distinctions to be noticed.”

Dr. Chas. Walter Aylward² believes from his experience that antitoxin is the remedy *par excellence* for diphtheria. To prove this he details 96 cases of diphtheria; 24 he treated *without* antitoxin and he lost 2 of them, and *thus* got a mortality for unantitoxinized diphtheria of 12.5 per cent; 72 cases he treated with never more than 1,000 units of antitoxin and lost 3. Therefore his antitoxin mortality was only 4.16 per cent. Think of it!—8 per cent in favor of *antitoxin therapy*.

But what did the patients die of? Of simon-pure Klebs-Löffler bacillary activity? Not at all. Both the two cases of non-antitoxinized death and the three antitoxinized deaths

¹ New York Medical Record, January 28, 1899.

² British Medical Journal, June 15, 1899.

died of troubles that are utilized as apologies for the shortcomings of antitoxin therapy. The two non-antitoxinized cases died thus: Case 1 died of asphyxia four and a half hours after having been seen for the first time—therefore hopeless from the start, even had antitoxin been used and were antitoxin really the boon it is by so many claimed to be.

Case 2 died suddenly of cardiac paralysis several days after the false membranes had disappeared—apparently another of those cases for which nothing can be done to save our patients from death.

The three antitoxinized cases died from like and similar causes.

Case 1 died during tracheotomy, from the combined effects of poison, asphyxia, and chloroform.

Case 2 died nine hours after serum injection, from asphyxia and exhaustion.

Case 3 died of cardiac paralysis several days after the injection of serum and after pseudomembranes had disappeared.

Antitoxin did no good in his really severe cases; and when we exclude the antitoxin cases that died, and allow that no treatment could have saved them, we cannot conclude otherwise than that Dr. Aylward's cases prove nothing for antitoxin and that his antitoxinized cases did no better than his cases that were not antitoxinized. The doctor assures us that the great majority of his cases were of a mild type.

Now let us study a more serious group of cases. Prof. Alois Monti, of Vienna, is an extremely interesting antitoxin advocate and as enthusiastic as he is interesting. In his most recent book on diphtheria he makes a number of astonishing remarks. Some of them can do nothing else than dishearten a very large number of antitoxin enthusiasts all the world over. And even his own statistics are fallacious in so far as his contentions are concerned, because he takes too exclusive a view by neglecting to take into account related circumstances that apply to Vienna epidemic influences. Let us analyze his statistics. All the patients were antitoxinized; but they are divided into two groups, because the dosage of antitoxin was largely increased in the second group, and to this increased dosage he attributes his assumed better results.

From October, 1894, to June, 1897, he treated 249 children, and 42 of them died, giving a mortality of about 17 per cent. And from June, 1897, to June, 1899, he treated with increased doses of antitoxin, more vigorously, at lessened intervals of

administration, 179 children, and of these 22 died, giving a mortality of nearly 12 per cent, that is, about 5 per cent + in favor of the second group. Such are the bare facts, and this is the way Monti explains the 5 per cent improvement of the second group over the first group, spreading from 1894 to 1897.

Monti says, and all of us will agree with him, that we cannot exactly estimate the amount of poison in the system of the patient, and that the amount of antitoxin that is given can be only approximate and must necessarily be uncertain. It is impossible to correctly gauge the necessary dose of antitoxin by clinical signs, and for these reasons the results will, in some cases, be unfavorable, despite the administration of antitoxin; and, Monti continues, for these reasons the results published by antitoxinizers are so variable and divergent. He claims that a thorough or complete neutralization cannot be assumed to have been accomplished until the temperature has become normal and the glandular swelling and toxemic phenomena have disappeared; and further on he says that it is certain that in the beginning of the serum-therapy period the doses that had been administered were much too small and the intervals of readministration altogether too few and far between.

These remarks of Monti, as well as his statistics, are rich in fallacies, because he is too much wrapped up in his own cogitations and exclusive perceptions. Monti uses only his own statistics to point his assertions, and is disconcerted by the untoward findings of other observers. And the chief error of his reasoning is found in his not taking account of the varying character of diphtheria at different times at the same place—Vienna, for instance—and at different places at the same time. Monti never hints at these facts. And, furthermore, he allows the false inference to pass that the disease has generally for Vienna been the same from 1894 to 1899, which the statistics of Vienna deny; and even his own statistics show by their accompanying clinical evidences that his second group were naturally milder than those of the first group. From 1894 to 1898 the population of Vienna increased steadily from 1,465,637 to 1,598,295; and the number of deaths from diphtheria and croup at Vienna numbered in 1894 1,679, and in 1895 the death rate from diphtheria and croup dropped to 710. Nine hundred and sixty-nine deaths less in one year is not due to antitoxin therapy efficiently or inefficiently administered. Monti fails to compare his statistics with these facts. The general death rate at Vienna continued to diminish, and Monti continued to grow dissatisfied with his results. At

Vienna in 1888 the population was 800,836, and the total number of deaths 20,349, and the total number of deaths of children under 5 years of age 7,547; and during this year the death rate for diphtheria and croup was 521. Ten years later, in 1898, the population of Vienna had risen to 1,590,295 and the number of deaths from all causes to 32,353. The number of children who died under 5 years of age rose to 13,593, and the number of deaths from diphtheria and croup fell to 520. Thus we may say that during the period when Prof. Monti was multiplying and enlarging his serum doses the virulence of diphtheria at Vienna was lessening—certainly not a flattering showing for antitoxin therapy or for Prof. Monti's perspicacity. Now we can better understand and more justly criticise Prof. Monti's statistics.

Prof. Monti divides diphtheria into three classes: (1) the fibrinous, (2) the phlegmonous, and (3) the septic or gangrenous form.

Of the fibrinous form he says the prognosis is, in general, favorable.

Now, we know that the milder an epidemic is, the commoner the fibrinous variety of diphtheria cases are. It is the character of "mixed infection" that makes an epidemic grave and multiplies the sequelæ and complications. Monti's first group of cases was 249 in number and contained 140 cases of the fibrinous variety. The second group numbered 179 cases and contained 132 cases of the fibrinous variety. Thus the second group has a natural general advantage over the first group of about 17 per cent. But the mortality of the first group of fibrinous cases was (8 deaths) 5.7 per cent. Three of these cases were nurslings with gastro-intestinal disease, and one died of pneumonic complications; and deducting these four cases leaves a mortality of 2.8 per cent. The mortality of the second group of fibrinous cases was (8 deaths) 6.1 per cent; then deducting two moribund cases, and the mortality is 4.6 per cent. This difference in the two groups of fibrinous cases is quite inconsiderable; and whatever difference there is, it does not show that the increased vigor resorted to in enlarging the dose and diminishing the length of the interval of administration has turned out favorably for antitoxin.

Let us proceed with the analysis. In the first group there were 35 cases with laryngo-stenotic symptoms, and 4 of these died, or 7.3 per cent. In the second group there were 56 cases of laryngeal stenosis, and 7 of them died, or 12.5 per cent. Does this show any advantage in the increased vigor of dos-

age? The four deaths of the first group resulted thus: Of 8 intubations, 1 died; of 3 intubations and 2 during tracheotomy, 1 died; of 2 when disease had spread from pharynx and larynx to trachea and bronchi, 2 died. The seven deaths of the second group occurred thus: Of 13 intubations, 4 died; of 3 intubations and 2 during tracheotomy, 0 died; of 2 tracheotomies, 1 died. And here in this table we find Monti two ahead of his summary. Two cases either got well or died, and this discrepancy (see pages 304-305) is either an oversight or a *lapsus calami*. If really only 5 of these laryngeal cases of the second group died, then the percentage of deaths is 8.9 per cent instead of 12.5 per cent, and a difference of only about 1.5 per cent results between the two groups; and this difference amounts to nothing when we fancy all the factors at play that are bound to modify and alter the complexion of the run of hospital cases in a large city. But the one fact that looms up out of these figures is this: large and vigorous dosages have no marked influences on the results attained by Prof. Monti.¹

In a letter addressed to me the health officer of a country township in Pennsylvania writes: "I use antitoxin, and my experience with it fully justifies my continuing its use. I have used antitoxin in 380 cases, and I must say it comes the nearest to being a specific than anything we have in our medical armamentarium." In a postscript he adds: "I sometimes read in hospital reports of physicians using 5,000 and 6,000 units at a dose. I think that is entirely unnecessary, and probably criminal—I am not prepared to say. My experience teaches me that one to two thousand units of a concentrated antitoxin like Mulford's is amply sufficient for *any* case; and then not to repeat the dose if the case shows any improvement after the first administration."

A neighbor of mine has injected serum into about 250 children who had been affected with the various types of diphtheria, and he was actuated by the same motives and principles that urge my Pennsylvania friend. On comparing notes with my neighbor, I do not find that he saves more patients than I do. His hopeless cases die, just as my hopeless cases die, and just as Prof. Monti's hopeless cases die.

In conclusion I would say that:

1. Statistics that have no key to unlock their meanings with are only of general significance, and are problems for the scientific imagination to unravel as best it can.

¹ "Kinderheilkunde in Einzeldarstellung Vorträge-Diphtherie," Heft x., Wien, 1900.

2. Statistics that will not submit to analysis according to the laws of time, place, degree, and manner are altogether worthless.

3. The statistics which we possess relating to different epidemics of diphtheria preceding the antitoxin era demonstrate that when an epidemic is intense or severe the complications are frequent, the sequelæ common, and the mortality rates high, because then the infection is compound or mixed in character. The same holds true respecting antitoxin-diphtheria statistics. And when the epidemic is mild the fibrinous cases are those commonly met with, "mixed" or compound infections are rare, and the mortality rate is low.¹ During mild epidemics not only are operations less frequently necessary, but the mortality rate for such operations as are performed is proportionately lessened.

4. The classifying of Nature's doings into set divisions is artificial and arbitrary; but such classifying, or dividing and defining, is not only a great convenience, but practically the best aid we have for memorizing complicated experiences and facilitating reflections. Therefore statistics should be constructed after such a manner as will be truest to Nature's doings. Monti's classification of diphtheria is a simple and a possible one—namely, fibrinous diphtheria, phlegmonous diphtheria, septic or gangrenous diphtheria. This division allows a subdivision into mild, moderate, and severe cases to be made of each class.

5. If statistics are constructed to teach and convince the practitioner and the public, and not merely for the edification of the writer, etc., they (the statistics) should be framed so as to give us a picture of the general aspect of the disease as it affects or affected the town or county—not a simple isolated sample, but a related specimen.

When all this is done, and a few other things besides that need not be mentioned just now, the laws of time, place, degree, and manner will be fairly observed and the study of statistics will have become satisfactory and enlightening, and the conclusions they endeavor to support will be much more readily accepted than is now desirable.

The incompleteness and the unrelatedness of so many statistics at present so frequently launched forth make them factitious presentations rather than presentations of facts.

406 WEST THIRTY-FOURTH STREET.

¹ "Antitoxin, Diphtheria, and Statistics," Medical Record, January 28, 1899.

SOME RECENT EXPERIENCES IN INTESTINAL SURGERY.¹

BY

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(With two illustrations.)

I HAVE to report three cases illustrating different points in intestinal surgery. On one of the operating days in the Howard Hospital there were four women to be operated upon the third one of whom was supposed to require a repair of the



FIG. 1.—Carcinoma of the sigmoid flexure.

perineum and a suspension of the uterus. She had a rectocele, a posterior displacement of the uterus, with adhesions involving the tubes. The perineum was repaired, the abdomen opened, the uterus stitched in place, and the etherizer was asked to begin on the next patient, when a hard mass was felt in the woman's abdomen above the pelvic brim. Examination showed it to be a carcinoma of the sigmoid flexure. There was nothing to do, of course, but to remove it. Resection of

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, March 15, 1900.

the colon was performed, without special instruments; the diseased portion of the sigmoid flexure, between six and seven inches in length, was cut away and the ends of the colon joined by carefully adjusted mattress sutures. The recovery was uneventful. There was a bowel movement on the fifth day without the slightest difficulty, and there has been no trouble since. The only complication is a slight infection of the lower angle of the abdominal wound by the colon bacillus, which suggested too late a useful step in technique—that is, to wear rubber gloves during the performance of the intestinal surgery and to sew up the wound with bare hands, or to operate upon the intestines with bare hands and then put on gloves before sewing the abdominal wound.

The second case is most extraordinary. The family history of the patient is negative. She had measles in childhood; no other illness until two years ago, when she suffered from typhoid fever complicated by pneumonia. Has always been troubled with constipation and has used cathartics frequently and in large doses. Menstruation began at the age of 12; occurred regularly, lasting five or six days, and was painless. She was married at 18 and has had two healthy children. No miscarriages, and since the last pregnancy her menstruation has been entirely normal until the beginning of the present illness. The last week in November, 1899, being nine days overdue in her monthly flow, at the advice of a friend she introduced into the uterus a smooth piece of wood about the size and shape of an ordinary penholder. In order to make sure of bringing on the flow she followed this by the insertion of a button-hook. Within a few hours she began to pass blood which resembled in its color, consistence, and amount her customary menstrual discharge. The flow lasted for four days and then stopped, but again appeared several days later. One week after the introduction of the foreign bodies she was attacked by sharp pain in the left hypochondriac region. She went to bed and called a physician, to whom she misrepresented her condition. During the next four weeks, or until admitted to the University Hospital, she was confined to bed and presented the following symptoms: fever and its accompanying rise in pulse; obstinate constipation; distension of the abdomen; spontaneous colicky pain throughout the belly and exquisite tenderness all over the abdomen. There was no bloody or other vaginal discharge during this time. An abdominal section was performed five weeks from the time of the insertion of the instruments into the uterus. There was found a perforation of the

uterine fundus and a perforation of a knuckle of bowel which was firmly adherent to the fundus uteri. There were several abscesses in and above the pelvis, and dense adhesions everywhere. The woman's condition was bad and she did not stand the operation well. Before the abdominal incision was well completed her pulse was 180 and it was obviously impossible to undertake any protracted or radical procedure. The hole in



FIG. 2.—Slough of colon and ileum.

the bowel was repaired and the abdominal wound closed with free gauze and tube drainage. The intestines in the neighborhood of the perforated bowel looked badly, but no worse than in many a case of intraperitoneal inflammation which has done well. The second day there developed a huge fecal fistula and all the feces were passed through the abdominal wound. The pelvis and the fistula were washed out daily with sterile water. At the end of three weeks the resident physician saw what

appeared to be a slough at the upper angle of the abdominal wound, and with the dressing forceps lifted out this piece of intestine (Fig. 2), the whole caput coli, and part of the ascending colon and three or four inches of the ileum. It is incomprehensible how the continuity of the bowels is maintained, yet the woman to-day passes all her movements by the anus. There is a small fecal fistula in the lower portion of the abdominal wound, through which there is a slight fecal discharge only when the bowels are very loose. She is perfectly comfortable, has no fever and has not had for three weeks. She has gained fifteen or twenty pounds in weight, and is to be discharged from the hospital to-morrow, six weeks after the operation.¹

The last case is one of atresia of the rectum, of which I have seen 4 cases in young infants. In 3 cases my attention was called to the little patients too late. In 2 cases the children were moribund when first seen in consultation, dying a few hours afterward. The condition was not noticed until three or four days after the child's birth. In one instance the physician had been told that the child was constipated; he ordered an enema. The nurse reported that the enema had been given, but with no effect. The enema was repeated, and a third was given, according to the nurse's story, when upon examination the absence of the anus was discovered. In another case, which I saw on the third day, the child was enormously bloated, but, thinking there was some chance for recovery, I did an inguinal colotomy on the left side. When the gut was incised gas and meconium spurted several feet from the child's body. The operation was performed without ether, and five minutes later the child was contentedly nursing from its mother's breast, and would have recovered if it had not bled to death. It was a hospital case. The resident physician's attention was called to it after some eight or ten hours because the child looked weak and pale, and on removing the abdominal dressing blood was observed oozing drop by drop from the wound. A fresh dressing was applied, which was repeated from time to time until the child bled to death in the course of about ten hours. No effort was made to whip over the edges of the abdominal wound with a running catgut stitch, which would have stopped the bleeding at once, and no notification was sent to the chief of the service.

The fourth case I saw this winter. Fortunately the condition

¹ She remains well six weeks later.

was recognized immediately after the child's birth by one of the students in the University of Pennsylvania. The child was operated upon before it was five hours old. A perineal operation was attempted, and I shall always hereafter, I think, attempt to do this sort of an operation before resorting to colotomy. It was necessary to insert the little finger into the child's pelvis up to the second joint, almost two inches (by actual measurement, $4\frac{1}{4}$ centimetres), before the rectum was reached; at that depth the end of the rectum was felt like a bulging bag when the child cried. Passing a tenaculum up along the little finger, the end of the rectum was seized, pulled down, opened with a knife, and stitched to the skin of the perineum just in front of the coccyx. The child had normal bowel movements daily, gained faster in weight than any child in the hospital, and left at the end of two weeks in perfect health.

This experience in atresia of the rectum suggests that an earnest effort ought always to be made to do the perineal operation before resorting to colotomy. It is a general impression, I think, which I shared formerly, that the best procedure in these cases is an inguinal colotomy and then, after relieving the distension and waiting a few days, an attempt to work a way up to the bowel from beneath by blunt dissection. Possibly this would be the better plan if the child is seen late and the distension is extreme, but even then I should be disposed to try the perineal section first.

1821 SPRUCE STREET.

MULTILOCLAR CYSTIC GROWTH OF OVARY, ACCOMPANIED
BY INCREASED GROWTH OF HAIR AND CHANGE OF
VOICE, WITH RECURRENCE IN THE ABDOMINAL
INCISION.¹

BY

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THE patient was a young married woman, age 26 years, who lived in the interior of the State and first came under my care in June, 1895. She had been married seven years and had had two children, the first being still-born after a severe instrumental labor.

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, March 15, 1900.

The first symptoms noticed were cramp-like pains in the abdomen four years before applying for treatment. Then her menses became irregular both in time and quantity, their color changed, and in three months' time they entirely ceased. She became excessively nervous and her voice began changing; it grew harsh and rough, and finally she could only speak above a whisper. She stated that at the time she had apparently no local throat trouble to account for the change. Subsequently the voice became stronger, but still retained its harsh character. About the same time hair began to grow on her face, breasts, chest, and abdomen. On the extremities likewise the hair grew coarse and abundant. She shaved the face regularly.

The following year she noticed that the left side of her abdomen was enlarging. This continued slowly until the year previous to applying for treatment, since which time it increased rapidly and her health began to decline. In September, nine months prior to operation, she had attacks of pain in the back and limbs, and also some in the abdomen which she said resembled labor pains. These lasted two weeks, but did not trouble her much if she remained quiet.

Early in the following January she had a second attack. It was very severe. The pains were cramp-like in character and lasted half an hour; they left her disabled for two weeks. Since April she was unable to do anything and lost flesh. The tumor increased rapidly in size. In June, prior to the operation, she had two attacks of pain. On one occasion she passed some "slime" by the bowels and vomited for three days. Operation in July, 1895. A large multilocular ovarian cyst was removed from the left side. Adhesions were few and not troublesome. Primary union of the wound took place and convalescence was rapid.

When her menses stopped at the age of 22 years she weighed 108 pounds; at the time of operation she was 26 years of age and weighed 130 pounds. After the operation she increased to 150 pounds, and later to 170 pounds.

Thirty-one days from the date of operation her menses, which had been absent for four years, again appeared. They continued regular until about October of 1896, fifteen months after the operation, when she became pregnant, and was delivered in June of 1897 of a healthy child, which she nursed for four months, when it died of whooping cough.

In June, 1898, I saw her again. During the previous three

weeks she had lost thirteen pounds in weight. At times she said she had slimy discharges from the bowel and thought she passed a quart at a time. During the past three months she again had her menses.

During her pregnancy and nursing the voice lost much of its harshness and the hair on the face grew less. The hair on the breasts and abdomen, an inch or more in length, coarse and abundant, fell out entirely, and that on the arms and legs on their outer sides dropped out, and on the inner sides was less in amount and disappearing.

On examining the abdomen two lumps an inch or two in diameter could be felt in the line of the incision below the umbilicus; there seemed also to be a larger mass within. Operation was advised, but she did not return to the city until five months later, and the second operation was done in January, 1899. At this time the lumps in the abdominal wall were removed with the overlying skin, and also a mass, as large as an adult's head, which projected from the posterior surface of the abdominal wall at the site of incision back into the abdomen and even into the pelvis. The mass had the appearance of a multilocular cyst with both liquid and solid contents. The site of removal of the original growth in the left broad ligament was visible as a simple dimple in the tissues, without a trace of any local recurrence.

The growth seemed to derive most of its nourishment from enlarged omental vessels, the omentum being adherent to it above and to the right side.

Primary union of the wound again occurred, and in three weeks she left for her home.

In July, 1899, six months after the second operation, she wrote that she felt much improved, had gained in weight, could do some work, walk out, and go to church. She had occasional pain and had discovered a small, hard lump a little to the left of the line of incision; in other words, there was a second recurrence. From this time on the growth increased in size, and after a ride of thirty miles she had an attack of peritonitis. Her physician, Dr. C. S. Musser, informed me that large masses could be felt in the abdomen and that there was also a considerable amount of free fluid. Pain was severe, and it was evident that she was suffering from a malignant peritonitis. There was no increase in the harshness of the voice, nor did the abnormal growth of hair again show itself.

She died on January 9, 1900. This was nearly nine years

from the time of the commencement of the disease, four years and a half after the first operation, and one year after the last operation.

The points of interest in connection with the case are evident. The growth of hair on the face, breasts, and other parts of the body, and the increased harshness of the voice, were apparently due to the ovarian disturbance, and show to what extent interference with the ovaries may influence the general health and characteristics. The prompt recurrence of the menses on removal of the growth certainly looks as if the operation had removed some inhibiting agent.

Whether the falling-out of the unnatural hairy growth was due to the removal of the tumor or subsequent pregnancy and nursing is an undetermined question.

Whether the recurrence at the site of the operation wound was due to direct infection by contact of the growth with the abdominal wall, or to an implantation of the contents of some of the cysts into the wound, it is impossible to say. The first tumor seemed to be a multilocular ovarian cyst, resembling much the second tumor, with the exception of there not being so many intracystic solid growths. Dr. Robertson, after an examination of the tumor, pronounced it to be a papilliferous cystic tumor which had undergone secondary carcinomatous changes.

There are several points of interest in this case. The tumor I first operated on appeared like an ordinary multilocular cyst. This which we have here is the second growth, the recurrence which was removed at the second operation a year ago. The first growth resembled this one very much, but was hardly so heterogeneous in character. Even at this time the voice of the woman and the abnormal growth of hair were very marked. There was as much hair on the chest and all over the breasts and abdomen as would be seen on the most hairy man. Then, as time went on, the recurrence showed itself. The tumor had existed for four years at least before coming under my notice, showing that it could not have been very malignant in its onset. The site in which the recurrence took place is of interest. This I thought would be in the neighborhood of the old operation or in the opposite ovary, but it seemed to spring from the posterior surface of the incision. There were two or three enlargements in the abdominal wall in the line of the incision, but the bulk of the tumor projected inside, covered by omentum. It is a question whether the second growth is an implantation growth.

That it should be an ordinary metastasis I think is hardly likely. It might have been possible that the peritoneum became infected by the direct contiguity, or it might possibly have become infected from some of the breaking cysts at the time of the operation. Not only is it interesting on account of the occurrence of this hair, but when the woman became pregnant and had her child the hair dropped out so that the breasts and abdomen were smooth. The hair on the face did not disappear entirely, but it was not so marked as previously. A large part of the hair on the extremities fell out, and up to the time of her death it was disappearing and her voice became much milder in its tone.

Here is the second growth, and you will see that it consists of a number of cysts, many of which contain fluid, while others contain solid masses.

An examination of the first growth was not made. Examination of the second growth, which appears macroscopically like the first, shows it to be a papillomatous ovarian cyst which has undergone malignant degeneration, so I presume it would be termed a carcinomatous growth. The examinations were made by Dr. Robertson, pathologist of the Episcopal Hospital.

ABDOMINAL PREGNANCY.

REPORT OF A CASE.

BY

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(With illustration.)

THE case reported is one of considerable interest in its clinical history and in the difficulties attending the diagnosis.

On Saturday, January 21, 1899, I was called in consultation by Dr. Walker, of Glencoe, to see with him a patient suffering with symptoms resembling somewhat hepatic colic complicating pregnancy. On arrival at the patient's home in Glencoe about 8 P.M. I got the following history: Mrs. Mc., æt. 33 years, married nine years; one child living, æt. 18 months. Labor and puerperium normal. Nursed baby three months and then

weaned on account of deficient milk. She had had two miscarriages, one at five months and one at seven months; in both cases fetus dead at birth. The last miscarriage occurred four years ago. Menstrual period started when 14 years old, and had been regular every four weeks except during pregnancy and lactation. The flow usually lasted four or five days and was rather free, but not painful. Last period occurred October 13, 1898. There was nothing abnormal about this period. Patient's previous history had been good. She had always enjoyed good health. With cessation of menstrual periods she supposed herself pregnant, and, with the exception of slight morning sickness, she felt perfectly well in every way till first week in January, 1899, when one morning, about 6 A.M., she awoke with severe pain in epigastrium and sternal region accompanied with slight faintness. This attack lasted about one or two hours, after which she was able to get up and attend to household duties, but she did not feel so well as before the attack. Again on Tuesday, January 17, about two weeks following the previous attack, she awoke about the same hour in morning with similar epigastric and sternal pain accompanied by faintness, resembling in every particular the symptoms of previous attack, with this difference, however, that they persisted, and on following day pain shifted and became localized in right iliac region and higher up on right side. She had to remain in bed and morphia was required to relieve pain. She had vomited but once, after a dose of morphia given to relieve pain on Tuesday evening. Her temperature had not exceeded $99\frac{1}{3}^{\circ}$ F. and her pulse had not been above 90. There had been almost complete loss of appetite. Bowels had been moved freely with purgatives and the stools were dark-colored. There had been no trouble with urine. She had been sleeping well.

At the time of my visit the symptoms complained of were pain and tenderness in right side of abdomen, in right iliac region, and higher up near under-surface of liver. She could not lie on left side on account of dragging pains in right side. Moving about in bed increased the pain complained of. Her temperature at this time was $99\frac{1}{2}^{\circ}$ F. and pulse 90. She was very stout, weighing about one hundred and seventy pounds, and did not look ill. She was not jaundiced and not anemic.

Examination of the abdomen was rendered difficult on account of the great thickness of fat in the abdominal walls. It was found to be dull on percussion in right iliac region and up toward right lumbar region, but resonant below liver and on

left side, also low down on right side. An enlargement and thickening, like inflammatory effusion, could be indistinctly felt in right iliac and right lumbar regions. Another enlargement, like enlarged uterus, could be felt extending up from behind pubes in median line nearly to navel. The mass on right side was very tender on pressure.

Per vaginam, the vaginal outlet was open and the mucous membrane had the bluish-purplish discoloration of pregnancy. On passing finger into vagina a mass could be felt filling pelvis, more on right side and posteriorly than on left side. The os was found open and soft, high up behind symphysis pubis. The impression one first got from digital examination was that of an enlarged, retroflexed, pregnant uterus partially impacted in pelvis. On more careful examination it was found that the fundus of uterus was forward, reaching nearly to navel, and the mass posteriorly was a myoma in posterior and right wall of uterus. The whole uterine tumor had some mobility and could be pushed up some, so that cervix could be brought down from behind pubes. Although uterine tumor could be moved independently of mass in right abdominal region, still when pressure was made on this mass from above it caused uterus to descend some, giving one the impression that there was some connection between the two. The possibility of intrauterine pregnancy contraindicated the use of uterine sound. Examination of patient's urine at this time gave negative results, except that it was very acid and loaded with urates. The breasts had the appearance of pregnancy.

A probable diagnosis was made of intrauterine pregnancy complicating myoma in uterine wall and probable inflammatory effusion in appendix region. The possibility of extrauterine pregnancy was considered, but the symptoms did not appear to be sufficiently marked for this; the faintness had never amounted to actual syncope and she had been subject to faint-spells from slight causes all her life. It was decided to keep patient quiet under close observation.

After the examination patient suffered very little pain and felt comparatively well except for nausea, particularly after taking solid food, and occasional slight dizziness and faint-spells. She kept very quiet and lived mostly on milk diet. She lost weight quite rapidly. The mass in right iliac and lumbar regions appeared to enlarge some, while the uterine tumor appeared to remain stationary. It was difficult to say how much of the enlargement in right side was real, or only

apparent from loss of abdominal fat and general lessening in size of abdomen. About the middle of March there was for a short time some malodorous, watery vaginal discharge. This was the first discharge of any kind there had been since cessation of menses in October.

On April 7, 1899, I again examined patient with Dr. Walker for the second time, and found the abdominal tumor on right side larger than at previous examination and the feel something like an enlarged pregnant uterus, but the location and shape were more like a tumor of right kidney. The uterine tumor was no larger than at first examination. A bruit like that heard in normal pregnancy could be distinctly heard low down in front above pubes.

Per vaginam, the signs of pregnancy were the same. Pulsation of uterine arteries was very distinct. The os was still high up behind pubes and open, so that finger could be passed almost through the internal os. On removal of finger from cervical canal some dark-colored blood followed, attended with slight labor-like pains. The myoma in posterior wall of uterus felt harder than at previous examination. All tenderness from pressure on abdominal tumor had disappeared. Patient had not felt life, and neither fetal movement nor fetal heart could be detected on careful examination.

In a letter from Dr. Walker, April 21, he says patient had slight labor-like pains for a week after this examination, but since then she had been fairly comfortable, with the exception of a continuous discharge of a pinkish color and rather offensive odor. She has taken little nourishment except milk. The size of abdominal and uterine tumors was about the same. Temperature had ranged from 99° F. to 100° F. and pulse about 90. On May 1 she came to St. Joseph's Hospital, London, and on May 3, under ether anesthesia, we examined. The abdominal tumor, under anesthesia, had the shape and feel and other characters of a tumor of right kidney, and a distinct sulcus could be felt between its lower end and the upper right cornu of uterine tumor. Apparently, however, the two tumors were connected at this point by what appeared to be inflammatory adhesion bands. A sound was passed into uterus forward to a depth of between six and seven inches. The cervix was easily dilated with a Goodell dilator and the finger introduced into cavity, but no fetal sac could be felt. With a large curette I carefully curetted out a large quantity of thickened decidua and a myomatous polyp about the size of a small marble. In

the scrapings I could see no appearance of placenta or fetal coverings. The bleeding during curettage was profuse and dark in color, but ceased after the entire lining was scraped away.

The cavity was irrigated and packed with iodoform gauze. After curettage the pulse ranged for a day or two between 110 and 120, and the patient had a very anemic appearance. The gauze packing was removed on the third day, after which there was no more bleeding from the uterus.

On the fifth day after curettage, the temperature, which had previously ranged from 99° F. to 100° F., went up to 102° F. and pulse over 120. Patient suffered from considerable nausea and vomiting, and some bearing-down pain in pelvis, with distress in voiding urine. Her urine became somewhat scanty, and on analysis showed some pus, but no casts or blood. The myoma in posterior wall of uterus became hot, tender, and swollen. The abdominal tumor was not tender except at one point high up near under-surface of liver. The pelvic and systemic disturbance appeared to be caused by inflammation of uterine myoma. These symptoms lasted nearly two weeks, then gradually subsided, all symptoms becoming normal. All tenderness and heat disappeared from myoma, and both this tumor and the uterus itself quite rapidly reduced in size. The abdominal tumor remained nearly stationary, or possibly there may have been slight diminution in its size.

The uterine scrapings were sent to Dr. Cullen, Johns Hopkins Hospital, Baltimore, for examination, and the following report was received from him: "The nodule, as you suggest, is a myoma. The scrapings consist almost entirely of normal decidua, but no placental villi are present. It is just such a mucosa as one finds several weeks after a miscarriage. There is not a trace of any malignant process."

The diagnosis of the abdominal tumor was still doubtful. We were, however, inclined to look upon it as a tumor of right kidney.

On May 31 I have recorded in case book: "Patient's general condition much improved; appetite good and gaining strength; abdominal tumor reduced some; uterine myoma reduced one-half. Sound in uterus measures $3\frac{1}{2}$ inches. Quantity of urine passed during twenty-four hours, about forty ounces. Urinary analysis shows pus, but no blood or casts."

On June 15, under ether, I made an exploratory incision in right semilunar line of abdomen, extending from lower margin

of ribs above downward about six inches over most prominent part of tumor. On cutting through the abdominal wall I came in contact with surface of tumor, which at first sight appeared to be extraperitoneal, but on closer examination, after enucleation had been proceeded with for some time, it was found that tumor surface was closely blended with parietal peritoneum.



Abdominal pregnancy.

Enucleation was moderately difficult. In order to get sufficient room it was found necessary to make another incision backward at right angles to vertical incision in lumbar region.

In enucleating outer side posteriorly the sac was broken into. Some dark clots and thin fluid escaped, and through the opening the back of fetus presented. The fetus occupied a doubled-up position in sac, with buttocks down and head flexed.

on body higher up. The placenta lay to the inner side and anteriorly to fetus, and was attached to the peritoneum to the outer side of ascending colon. The whole sac lay in a bed directly in front of right kidney, having pushed the colon over near median line of abdomen; the upper, large end just below the lower margin of liver, the lower, small end in the outer part of right iliac fossa. Attached to this end and to the abdominal peritoneum at this point was the fimbriated end of right Fallopian tube.

After separation and ligature of bleeding points in abdominal end of tube, the whole sac, containing fetus and placenta, was readily enucleated from its bed and removed. After enucleation of tumor the only part of bed that could not be thoroughly cleansed was a pocket, about two inches in diameter, high up in right lumbar region, and this was packed with iodoform gauze brought out through abdominal wound.

Examination of pelvic organs through the abdominal wound showed uterus enlarged up to margin of brim of pelvis by a myoma in posterior wall to right. The myoma was the size of a small orange and lifted the right Fallopian tube somewhat above the pelvic brim; the outer end of the tube being well up in iliac fossa and adherent to parietal peritoneum of abdominal wall at extreme upper and outer part of fossa. The right ovary was found flattened out and adherent to posterior surface of broad ligament well up in iliac fossa. It was slightly larger than normal and cystic. After the adhesions were separated and cysts punctured, the gland had a normal appearance. The tube also appeared normal except at the adherent outer end. A probe passed down through tube showed the canal to be patulous. All adhesions were separated and the abdominal orifice of tube was closed by suture, and both tube and ovary were permitted to drop back toward the pelvic cavity. The left ovary and tube were found normal and were not interfered with.

The abdominal wound was closed by suturing the transversely cut muscles in lumbar region in layers with catgut and the vertical incision with silkworm gut, except where gauze packing was brought out near upper end of wound.

Convalescence from operation was practically uneventful. There was little drainage from the gauze packing, which was removed on the fourth and fifth days after operation. Primary union took place throughout the whole length of the abdominal wound except at a small point where gauze drain had been. Patient left hospital in good condition July 20.

Remarks.—1. In this case I think there can be little doubt that the pregnancy started as tubal near the outer end of the right Fallopian tube, and it is probable that a tubal abortion, with expulsion of sac and contents complete into abdominal cavity, took place about first week in January. The uterus being lifted up by the myoma in its wall, and also by the development attending pregnancy, raised the tube so that its outer end was well up in right iliac fossa in such a position that ovum sac aborted into the space outside cecum and ascending colon, forming attachments there. Development as an abdominal pregnancy continued till probably about April 1, when fetus died, after which patient had false labor pains with discharge of some blood from uterus, and, later on, some diminution in size of abdominal tumor.

2. Internal hemorrhage had never been very great. Some hemorrhage had evidently occurred into sac, as at operation sac contained considerable old blood clot. A few organized blood clots were also found in peritoneal cavity at lower end of sac in right iliac and inguinal regions.

3. It is probable the anemia and rapid pulse following curettage on May 3 were partially due to loss of blood from uterus and partly to some internal hemorrhage into sac and into peritoneal cavity at lower end of sac, as the anemia, etc., following this procedure seemed out of proportion to the quantity of blood lost from uterus.

4. The location of abdominal-pregnancy tumor, and its marked resemblance in nearly all of its characteristics to a kidney tumor, were peculiar.

5. Besides the location of tumor, other difficulties in the way of making a correct diagnosis before operation were: the absence of marked symptoms of internal hemorrhage at any time; the fat abdominal wall; the inability to detect either fetal movement or fetal heart; and the enlarged, myomatous uterus, having about it all the early signs of intrauterine pregnancy complicated by myoma.

6. That fetal movements were not felt by patient, and neither fetal movements nor fetal heart detected by attendant, may be accounted for by the very thick abdominal wall and thick sac wall which covered the fetus anteriorly.

Note.—I examined patient December 15, 1899. No menstrual period since operation; general condition good; abdominal cicatrix in good condition; uterine myoma has reduced considerably in size and is not causing any trouble.

PREVENTIVE GYNECOLOGY.

BY

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THERE is perhaps no field in medicine in which prevention can save more suffering than in that of gynecology, and yet certainly there is no field in which it is more commonly disregarded. We know definitely the nature of most of the pathological conditions in the pelvis, the causes that give rise to these conditions, and the consequences which follow in case they are neglected. The practitioner of medicine, however, is very apt to lose sight of all this and to expend his efforts, not in guarding against disease, but in caring for the woman only after irretrievable damage has been done or she has undergone years of needless suffering. He does not hold himself responsible for this state of affairs, but, ascribing it to the ignorance or carelessness of patients in general, takes it as a matter over which he has no control. He cannot shun his responsibility in this way. The public, though far in the rear, slowly but surely follow the ideas of the profession in matters of the health. If we would have regard paid to prevention we must teach it. Our duty is not only to *relieve* suffering where we see it, but to give such care and inculcate as far as possible such teaching as will *prevent* suffering.

It is not my purpose in this brief paper to attempt to treat exhaustively the many subjects which the term "preventive gynecology" brings to mind, but simply to outline in a general way what I regard as the duty of the physician toward those women who come under his care. Preventive gynecology may be conveniently divided into the following topics:

1. Care of the woman before marriage.
2. Care during gestation and labor.
3. Care during the climacteric.
4. Prevention of gonorrhea and syphilis.
5. Prevention of carcinoma.

In caring for those patients who are not married, a physician should have a ready appreciation of the difficulties such patients undergo in confiding their troubles to him. To deal

with them tactfully yet firmly is often no easy matter, but one should never rest satisfied until he is sure he has grasped the situation and is treating his patient intelligently. Promiscuous examinations in this class of cases are unwarrantable, but at the same time there are certain indications which should make us insist upon them. Persistent and severe pain at or between menstrual periods, protracted amenorrhea without constitutional cause, profuse discharge or menorrhagia, should always make examination imperative. A young woman has recently come under my notice who for ten years had suffered extreme pain at each menstrual period, and who had been to a number of different physicians, no one of whom had suggested an examination. She was suffering from an anteflexion (pathological), which was operated upon and her trouble relieved. She should have been operated upon ten years ago, and would gladly have submitted to examination and operation at that time. I have no sympathy with that idea which keeps from a girl all facts in regard to her womanhood. At the time of puberty it is the duty of every mother to explain to her daughter such things in regard to the pelvic organs as shall be necessary to the maintenance of health. Menstruation should be explained and the rules to be followed while menstruation is in progress. The mother should have instruction in this from her medical adviser. There is no need that a young woman's attention be morbidly held to such matters, but the right kind of instruction and the health that should follow it will tend to free her mind from thoughts in this direction rather than direct it toward them. The general health should be carefully looked after at this time of life. School work or work in the shop should be lightened, in some instances abandoned altogether. Regular hours for sleep and plenty of nourishing food should all be insisted upon. Chlorosis is very common at this age and demands strict attention. The foundation of years of ill-health is often laid at this important period.

In childbirth a woman is called upon to perform a function which always threatens the health of her reproductive organs. While by far the greater portion of such processes goes on normally and without deleterious effects, the reason for most of our gynecological operations is found here. A large portion of the ill-health that women suffer is due to want of care at this time. When a woman becomes pregnant she should be taught to consult her physician. Examination should be made to see that the uterus is in good position and the pelvic organs

normal. As a matter of routine, the measurements of the pelvis should be carefully taken, to guard against pelvic deformity. The urine should be examined at least once a month. Even during normal gestation the patient should be occasionally seen, and as labor draws near instruction should be given as to the proper arrangements for that event. The selection of a nurse (if one is to be afforded) should be left to the physician. Looking after the health of patients during pregnancy should be conducive to normal labor. At the time of labor absolute surgical cleanliness is of course imperative, and any unnecessary deviations from it should be regarded as a crime. I believe in the normal case it is seldom necessary to examine more than once or twice, and this should be done with rubber gloves properly sterilized, the same coming in contact with the vagina only. Men who would hesitate about putting an unsterilized hand into the open abdomen will often examine an obstetrical patient in a most slovenly fashion. Yet the danger is perhaps greater in the latter instance. Prolonged labors, as tending to produce sloughing and relaxation of the pelvic structures, must be avoided. A judicious use of the forceps is an important means at our command in the prevention of the evils arising through childbirth. The physician should see to it that the patient remains a proper time in bed and that the uterus and other pelvic organs undergo a proper involution. It has been my habit to allow patients to sit up to evacuate the bowels and void urine. This drains the uterus and vagina and certainly can produce no harm. Frequent change of position in bed is also important, in that it tends to prevent retroversion. All tears involving the integrity of the pelvic outlet should be immediately sutured. The sutures should be so placed that they bring together the torn muscles and fascia, care being taken to avoid turning in of the relaxed mucous membrane. Sutures carelessly placed are worse than no sutures at all. Repairing tears of the cervix at the time of labor is no longer generally done. Certainly the danger of infection would seem to counteract the advantage of repairing all ordinary tears. At the end of three months all cases of labor, whether normal or otherwise, should be examined. I do not believe that the obstetrician is responsible for all the relaxed vaginal outlets that one sees, although this is contrary to the old teaching. We will occasionally find this condition as the result of many labors or of a prolonged single labor without actual rupture of the soft parts. Where the stretching has

been very severe or often repeated, it is very possible that the tissues do not regain their normal tone, hence a condition similar to that produced by an actual tear. It is necessary at the time of this examination to carefully note the status of all the pelvic organs, so that such data may be used for future reference, even though the case does not demand immediate surgical attention. Minor or plastic pelvic surgery is the conservative gynecology of to-day. When this is more universally recognized we shall have much less use for major or abdominal surgery.

As to care during the climacteric: In defiance of all that we have learned in regard to the dangers of this period, physicians are too prone to ascribe all disagreeable symptoms that a woman may have to the "change of life," and to overlook important diseases, and especially new growths in the pelvis. Each case then requires careful analysis.

In regard to the prevention of venereal diseases: In spite of all that is known to-day in regard to the spread and far-reaching results of syphilis, and especially gonorrhea, in spite of all the laws enacted to control prostitution, these diseases still prevail about as generally as ever and with just as bad consequences. I am optimistic enough to believe, however, that when our present knowledge regarding these diseases shall be generally spread among the laity there will be at least some improvement in this matter. When a woman knows that by marrying a man of loose habits she runs a distinct danger of ruining her own life, such men will be shunned socially and avoided as husbands. The most innocent, at least, of those who suffer to-day will have some protection.

As to the prevention of carcinoma: As a woman approaches middle life it should be carefully seen to that all tears of the cervix are repaired. In case the cervix is not infiltrated or the woman objects to an operation for a condition that is giving her no annoyance, it should at least be looked to that this structure remains in a perfectly healthy state. The lives of thousands of our women who now die annually of cancer would be saved by following this rule.

A REVIEW OF FIVE YEARS' EXPERIENCE WITH PELVIC DISEASES AT THE VANDERBILT CLINIC.

BY

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INTRODUCTION.—The work in the Gynecological Department of the Vanderbilt Clinic began with the opening of the building in October, 1888. The number of new patients, beginning with 598 in the first year, increased each year until 1896, when a total of 3,435 was reached. Since then there has been a slight falling off, 3,144 having applied in 1898. The total number since the opening in October, 1888, to January 1, 1899, was 25,504.

HISTORIES.—A written history of each patient is taken at the time of the first visit, in books that, allowing two pages for each history, hold one hundred histories. The books are printed according to the following form:

No.	Date		Vanderbilt Clinic.
Name.		Age.	S. M. W. yrs.
	ipara; Last child.		Labors, easy, instrumental.
No. of miscarriages.			Last.
Menstruation:	First.		
	Type.		
	Duration.		
	Amount.		
	Pain, before, during, after.		
	Last.		
Pains.			Inspection.
Discharges.			Per vaginam.
Bladder.			Bimanual.
Bowels.			Sound.
Appetite.			Speculum.
Intercourse.			Diagnosis.
Duration of present illness.			Treatment.
Chief symptoms.			

The histories can be written very quickly and accurately in this way, although it is always true in any large institution that many of them, written by any method, are incomplete.

An addition to this form of history blank, although it has not yet been embodied in the history books, has been used satisfactorily in a form that is printed on cardboard. As will be seen, space is reserved for both the former and the present type of menstruation.

Name.	Age.	S. M. W.	yrs.
ipara; Last child.		Labors.	
Miscarriages.	Last.	Remarks.	
Menstruation:	First appeared.		
	Present: Type.		
	Duration.		
	Amount.		
	Pain.		
	Last appeared.		
Chief symptoms.		Bowels.	
Duration of illness.		Bladder.	
Previous history.		Discharges.	
Family history.		Intercourse.	
Appetite.		Remarks.	
Digestion.			

These cards, filled out by one of the staff, are given to the professor of gynecology with each patient sent to his clinical lecture.

EXAMINATIONS.—The examinations are conducted on a Chadwick table, with the patient usually in the dorsal position. The Sims position is rarely used for diagnosis. The corsets are removed and the waistbands are loosened in all cases presenting any difficulty. A regular order in the examination is observed and includes:

1. Abdominal inspection, palpation, and percussion.
2. Inspection and palpation of the external genitals.
3. Vaginal palpation.
4. Combined vagino-abdominal palpation.
5. Combined recto-abdominal palpation (especially in single girls).
6. Use of speculum and other instruments.

The examinations are often unsatisfactory at the first visit, because of the distension of the rectum and bladder, and a cathartic and enema are ordered and the patient told to return on another day.

If there are unusual difficulties in the way of making a diagnosis, the patients are sent to Roosevelt Hospital for an examination under an anesthetic.

TREATMENT.—A large number of the patients who apply to

this department for treatment are suffering from temporary congestion of the pelvic organs, for the relief of which advice as to rest, exercise, diet, cleanliness, and care of the bowels is all that is required.

All patients who require even minor operations are sent to Roosevelt Hospital. The writer includes in this class nearly all that need intrauterine treatment. The interior of the uterus above the internal os is rarely invaded, because of the impossibility of being aseptic in the time that can be devoted to such a large number of patients. Asepsis, too, cannot be properly carried out in many cases without anesthesia. It is thought that intrauterine manipulation by those who do not follow such rules is a frequent cause of severe pelvic disease. Demonstration of the truth of this opinion is frequently seen in the patients who come to this clinic after previous treatment elsewhere. Hence the local treatment adopted by the writer in the clinic is limited to a comparatively few and simple measures.

Positions in Treatment.—The writer uses the dorsal position almost exclusively for all of his procedures. In a few cases—as, for instance, if a pregnant uterus has become retroflexed and incarcerated—use is made of either the Sims or knee-chest position. However, in general, the pelvic organs in either the Sims or knee-chest position fall away so far from the fingers that manipulations are hard to make. The knee-chest position is advised for the patients to assume at home for a certain time each day.

Tampons.—Nothing in the way of local treatment has proved of so much value as the use of rightly made and carefully placed tampons. It is believed that, in spite of all the information that is available upon this topic, failures in their use are due to the neglect of one or both of these essentials.

A rightly made tampon must consist of some non-absorbent material, like ordinary cotton, as used in the clinic; or, better, of lamb's wool, which is more springy. They should be soaked in some fluid like one of the two following:

R 1. Chloral hydrate.....	2 parts.
Alum.....	2 “
Boroglyceride.....	4 “
Glycerin.....	15 “
R 2. Ichthyol.....	1 part.
Glycerin.....	10 parts.

Both of these formulæ are very generally useful, and, al-

though it is hardly possible to state positively that there are any special indications for the preference of one over the other, it has seemed to the writer that the first formula, on account of its marked analgesic and astringent properties, relieves pain more quickly and hence is more useful in the beginning of treatment. Occasionally it is irritating to the vaginal mucous membrane, and ichthyol must be substituted. Dry tampons are sometimes used in cases of movable displacements.

Care in the placing of the tampons is a very necessary requirement for success in their use. The posterior fornix is generally the best part of the vagina to place them. They may be introduced through a speculum, or better, in some cases, upon two fingers that press the pelvic floor downward. In either case the forceps with which they are held must be kept against the tampon until either the speculum or fingers are partially withdrawn from the vagina. The writer rarely uses more than two tampons at each treatment, and more often only one. They are usually left in twenty-four hours.

Vaginal Douches.—The application of heat by means of vaginal douches with large quantities of hot water cannot be practised at the Clinic, partly because it would consume too much time, and more especially because it is desirable that the patient should rest after such a procedure. Some of the patients are instructed how to carry it out at home, but it has been found that it is often done so imperfectly that more harm than good results. Its efficacy, however, when large quantities of water at about the temperature of 112° F. are used and the proper position is assumed, cannot be doubted.

Antiseptic vaginal douches are frequently ordered. One of the best for this purpose is the following formula:

R Zinci sulphatis,
Acidi carbolici,
Acidi borici..... āā ʒ i.
Aquæ q. s. ad. ʒ iv.

M. et sig.: One drachm to half an ounce in one to four pints of hot water.

Counter-irritation.—Counter-irritation of the vaginal vault with Churchill's tincture of iodine for the relief of chronic pelvic inflammation has frequently proved of value.

Treatment of the Cervix.—Cervical erosions are treated by curettage with a small, sharp curette, followed by applications of various solutions, of which may be mentioned silver nitrate, iodized phenol, and pyroligneous acid.

Retention cysts are frequently opened and cauterized, the contents of which are sometimes purulent and considerable in amount.

Puncture or scarification of the cervix, in order to relieve uterine congestion, has proved of great value.

Pessaries.—It is probable that the use of pessaries is regarded with so much indifference because considerable experience is required before they can be used successfully. The writer has formulated certain rules for his own guidance, by adherence to which some measure of success has been attained.

1. Never introduce a pessary at the first visit of the patient. Frequently some contraindication is present that may be overlooked during the first examination.

2. Preliminary treatment with tampons, for a short time at least, should always be adopted.

3. The uterus must be movable and capable of being brought forward without pain.

4. A pessary should never be used if there is the least tenderness or sign of pelvic inflammation.

5. Avoid the use of large pessaries as much as possible.

6. Pessaries with as little curve as possible, especially at first, should be selected.

7. Patients should always be told of their presence in the vagina and instructed to return at certain intervals while they wear them.

8. A mildly antiseptic vaginal wash should always be used for the sake of cleanliness and to prevent erosions, especially in elderly women, who are so often liable to atrophic vaginitis.

Hard-rubber pessaries of the Albert Smith pattern, or in cases of prolapse, especially in elderly women, the round ring, have been practically the only kinds used by the writer. A Thomas pessary is used occasionally, either of hard or soft rubber, if the uterus shows a tendency to flex over the posterior bar.

Pelvic Massage.—Pelvic massage has been practised frequently, chiefly in cases of adherent retroverted uteri. It is accomplished by the combined work of both hands. One hand upon the abdomen rubs downward, constantly trying to pull the fundus forward, while two fingers of the other hand in the vagina rub and push the adherent uterine body upward with as much force as the patient can stand. The repetition of this procedure at intervals of three or four days, following each treatment with the introduction of tampons, has often replaced

a uterus to its normal position and relieved the patient of her symptoms.

SECTION TEACHING.—Section teaching in this department began in the fall of 1890. The course was offered as an optional to third-year students, and, under the direction of one instructor, the class was divided into sections of ten men and six lessons given to each section. The course was intended to be entirely practical, but the sections were so large that the examinations made by each student were too few to be of any practical value. The attendance always began to decrease after the holidays, so that long before the final examinations it became very irregular.

Two instructors were appointed in 1896 and the class was so divided that the efficiency of the work was greatly increased. The attendance, although the course was still optional, remained much more regular throughout the session.

The course was made a required part of the third-year curriculum in the fall of 1896. There are now usually five men in each section, and six lessons are given as before, although the holidays have deprived some of the sections of their full number of lessons.

ARRANGEMENT OF THE ROOMS.—A most efficient aid to the practical demonstration of pelvic diseases to the sections is afforded by the arrangement of the rooms. The demonstrations are given simultaneously in two adjoining rooms that open into each other, so that if any specially interesting or important lesion comes before one section the students in the other room may also easily see it.

A large hospital screen divides each room into practically two parts, on one side of which, near the window, the students stand. The table, mounted on rollers, is prepared for the patient on the other side near the entrance door. The patient is then brought into the room and arranged upon the table by a nurse, who then pushes the table half-way through the middle wing of the screen. The student in this way only sees the lower half of the patient's body. When the examinations are completed the nurse pulls the table back, assists the patient off the table, and dismisses her from the room.

DETAILS OF THE COURSE.—Each lesson lasts one hour, and during the six lessons each student makes from twelve to fifteen vaginal examinations under the guidance of the instructor.

Examination by the students themselves, in fact, is made

the chief feature of the course. The introduction of the speculum and the use of tampons are also practised by each man. The histories, symptoms, diagnosis, and treatment of a few selected cases are given near the end of the course. A brief outline of the points taken up, and the general arrangement of the lessons, may be given as follows:

First Lesson.

Inspection and palpation of the	{	Urethra.
external genitals.		Vulvo-vaginal glands and ducts.
		Pelvic floor.

Second Lesson.

Same as first.

	{	Direction.
		Consistence.
		Lacerations.
Vaginal examination.		Size and shape.

Palpation of fornices.

Introduction of bivalve speculum.

Third Lesson.

Same as first and second.

Beginning of bimanual examination.

Positions of the uterus.

Introduction of tampons.

Fourth Lesson.

Continuation of bimanual examination.

Use of uterine sound.

History, symptoms, diagnosis of cases.

Fifth Lesson.

Continuation of bimanual examination.

Introduction and use of pessaries.

Demonstration of Sims position and use of Sims speculum.

Sixth Lesson.

Review and practical quiz.

The course in general is elementary, but at the end most of the men can at least detect the position of the uterus by the bimanual examination.

The students' interest in the work and their desire to get more experience are demonstrated by the large number of requests made to the instructors for summer work in this department.

The clinical material is more than sufficient to permit of double the present amount of clinical teaching. Four thousand eight hundred and eighty new patients applied to this department from October 1, 1897, to May 1, 1899. It has been estimated that about 1,000 of them were used for clinical instruction. Many, of course, are single and so not available for this work; but, allowing for them, it is clear that it is possible to largely increase the practical work of the students.

CLINICAL REVIEW OF CASES.

The writer had from January 1, 1894, to January 1, 1899, 2,970 patients under his own observation and treatment; 1,491 of these, whose histories are complete, have been selected for the basis of this review.

MENSTRUATION. *First Appearance.*—The histories of 1,330 patients record the first appearance of the menstrual function as follows:

Age.....	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Number....	3	5	36	99	208	313	194	183	75	69	16	5	4	2	2

As a large number of the women represented in this table are foreign-born, it does not accurately demonstrate the age of the first appearance of menstruation among the poorer class of women born and reared in New York. The influence, however, of city life and poor hygienic surroundings is probably shown by the large number of variations from what is generally considered the normal age of American women born in this climate. Taking 15 to be the year most generally accepted as normal, we find in the table that the largest number menstruated first at 14, and that the premature variations slightly exceed the number of delayed appearances.

Premature Appearance.—No case came to the Clinic because of precocious menstruation, so that no observations of its relationship to other changes of puberty have been made.

Special causes for prematurity were difficult to obtain, but, from their histories, heredity seemed to be the most frequent. Nationality was not observed to have had any particular influence. Poverty, with its associations of bad habits, hard work, and poor surroundings, was thought to have some relationship.

Results of Premature Appearance.—The most pernicious results came indirectly from the early marriages that are so frequent under these circumstances. The evil influence of early child-bearing both upon the mother and the offspring was frequently demonstrated.

Delayed Appearance.—The first appearance of the menstruation, as shown in the table, was delayed beyond the sixteenth year in 173 cases and beyond the eighteenth in 29. Forty-two girls were brought to the Clinic for this reason. None of them were examined locally. Most of them worked hard indoors,

especially in shops. Many suffered from chlorosis, and in a few no cause could be assigned.

Menopause.—The age of the cessation of menstruation in 84 cases is shown in the following table:

Age.....	31	32	33	34	35	36	37	38	39	40	41	42	43
Number of cases.	2	0	0	2	2	0	4	6	1	8	3	7	4
Age.....	44	45	46	47	48	49	50	51	52	53	54	55	56
Number of cases.	3	13	5	6	4	4	4	2	0	2	0	0	2

Variations in the time of its cessation, as will be seen by comparing the tables, were relatively more numerous than in the time of its first appearance. About three-fourths of the women stopped menstruating between the ages of 40 and 50, a few less than one-half between 40 and 45. The premature variations, as was the case with its first appearance, exceeded the number of delayed cessations.

Relationship of Time of Cessation to Time of First Appearance.—The number of observations were too few to sufficiently determine this point. Of 24 women who first menstruated before 14, 17, or 70+ per cent, stopped before 45; while of 37 who first menstruated at 14 or later, 20, or only 54+ per cent, stopped before 45. Heredity, it was thought, influenced the normal variations in the time of cessation more than any other factor.

Premature Cessation of Menstruation.—There were 12 cases in which the menopause occurred before 40, and the following observations were made: 4 had suffered from severe injuries during labor, which had resulted in marked vaginal bands and adhesions and uterine atrophy; 3 had had syphilis for several years; 3 had rapidly acquired a large amount of fat; the uterus was atrophied in all except 2, in 1 of which it was considerably enlarged.

Delayed Cessation.—There was nothing in the 6 cases in which menstruation continued after 50 to suggest any particular cause.

Conditions Associated with Menopause.—One hundred and nine patients presented themselves because of symptoms referable to the menopause.

Atrophic changes in the genital mucous membranes accounted in 64 for the symptoms, of which pruritus, discharge, and disturbances of micturition were the most important.

The cases may be divided, according to the mucous membrane most affected, as follows: urethra, 26; vulva and vagina, 24; endometrium, 14.

1. The urethra in a few instances presented the signs of an acute purulent urethritis, which could not be differentiated from gonorrhea without a microscopical examination of the discharges. Fibrous changes in the connective tissue around the urethra were so marked in some cases that the urethra felt through the vagina like a hard tube.

2. The vulvitis and vaginitis were well marked in many of the cases, and fibrous bands and adhesions often obliterated the cervix. In one case the vagina was so markedly contracted that it would not admit the little finger, and could be felt by the combined recto-abdominal examination as a hard cord running from the vulva to the uterus.

3. Endometritis was manifested by a profuse, purulent, and irritating discharge, sometimes associated with hemorrhages. The differentiation of such cases from cancer of the uterine body was difficult without a microscopical examination of the curettings. It was observed, however, that in cancer of the body the uterus was enlarged, even early in the disease, and the external os was often patulous; whereas in endometritis at this time of life the uterus was usually small and the external os not patulous. Many observers have considered an old gonorrhea the cause of some of the marked inflammations of the genital tract in elderly women. The writer found the gonococci present in two of the severe cases, in both of which there was every reason to exclude recent infection.

Nervous and Vasomotor Disturbances.—Various pains in different parts of the body, and flashes of heat and cold, were the chief symptoms in 20 cases. Digestive disturbances were also frequently present. The best results in the treatment of such cases from drugs were in the use of pills consisting of iron, quinine, and strychnine.

Amenorrhea.—Ten patients who had the usual symptoms of the approaching menopause presented themselves because menstruation had ceased and they were doubtful as to the existence of pregnancy. Certainty of its absence in a few was difficult.

Obesity.—Seven women whose rapid increase in size, especially about the abdomen, led them to suspect either pregnancy or a tumor, were seen and assured of the absence of both.

Diabetic Eczema of the Vulva.—These cases are included

in the disturbances of the menopause, because all of the cases (8) occurred in women at about that time of life. They were usually very stout, and none of them had been aware of the existence of diabetes before the examination. Intense pruritus was the chief symptom for which they sought relief.

The appearances of the vulva were usually characteristic, but pruritus, especially in elderly women, always demands a urinary examination. The labia minora were greatly thickened and felt tough and leathery. The surfaces often looked as if sprinkled over with some white dusting powder. The vestibule and carunculæ usually were very much reddened. The powdery appearance, however, has not always been found characteristic of diabetes, as in several instances in which it was present no sugar was found in the urine.

Besides the treatment for diabetes, which by itself gives relief in many cases from the local condition, thorough washing of the external genitals, after each urination, with soap and water, followed by a mildly antiseptic wash, was advised. After this the parts were to be thoroughly dried and dusted generously with a good drying powder.

Amenorrhea in Young Women.—Sixty-two young women applied for treatment because of irregular, diminished, or suppressed menstruation, and the following causes were found: chlorosis, 22; pregnancy, 11; infectious diseases, 7; change of climate, 11; unassigned causes (simply poor general condition), 11.

Chlorosis.—Menorrhagia instead of diminished menstruation occurred in two well-marked cases, both of whom were cured of their menorrhagia by the treatment for the chlorosis. Profuse leucorrhœa was the only pelvic symptom in several; it, too, responded quickly to the administration of iron. Nothing acted better in the treatment of these patients than Bland's pill combined with cathartics.

Change of Climate.—This class was largely represented by servants, especially Irish girls, who had been in this country only a short time. There were a few Swedes and Germans. The menstruation returned in the majority of them within six months or a year without any treatment except care as to their diet and bowels.

Infectious Diseases.—The absence of menstruation during and following infectious diseases is, of course, well known. Four of the writer's cases were suffering from pulmonary tuberculosis, and 3 had recently recovered from typhoid fever.

MALFORMATIONS.—Thirty-eight examples of malformation of the genital organs were seen, which may be classified as follows: infantile type of uterus, 25; antelexion of the uterus, 4; uterus septus, 1; double vagina, 5; atresia vaginæ, 3.

Infantile Type of Uterus.—The most common form of uterine malformation was represented in 25 patients, whose uteri, it seemed to the writer, really preserved the characteristics of the infantile type of the organ, namely, a high flexion, a small body, a large, long, and conical cervix, and quite often a pin-hole os. Many varieties were seen, depending upon the greater or less development of certain parts in one as compared with another. A hypertrophic elongation of the cervix was the chief feature in 4 cases, while the pin-hole os was especially prominent in 3 others. In several cases of this type the uterus was markedly drawn backward and upward by thickened and contracted utero-sacral ligaments, which were probably the result of a long-continued cervical catarrh. There have been included in this infantile type several cases of retroversion and retroflexion with prolapse of enlarged and tender ovaries, because it seems as if the cause of this condition originated in an error of uterine development.

Symptoms. Amenorrhea or scanty menstruation, dysmenorrhea, leucorrhea, pain in the back, and sterility if they were married, represented the chief symptoms. Scanty menstruation, for instance, occurred in 15; leucorrhea was a prominent symptom in 11; pain in the back was present in 16. Among 18 of those who were married, 16 had been absolutely sterile, 1 had one child, and 1 had had three miscarriages.

Treatment. The treatment of the condition itself was unsatisfactory, but measures adopted for the relief of associated disturbances, as anemia, constipation, and bad hygienic surroundings, often greatly ameliorated the pelvic symptoms. Cases with contraction of the utero-sacral ligaments were benefited by tampons, douches, and hot sitz baths. Operative procedures, as dilatation, curettage, and infrequently partial amputation of the cervix, were advised. It is possible that rectal irrigation, especially in single women, might prove useful.

Anteflexion.—A class entirely distinct from the former, but frequently confused with it, is that in which the uterus conforms to the adult type, but is usually small and has a very sharp and rigid flexion. The flexion in these cases is low. Endometritis usually accompanies the condition after a

longer or shorter time and causes most of the symptoms. The same symptoms appear as in the former class, except that sterility is not so common. Pregnancy will usually relieve the symptoms, even if it does not go to full term, as frequently occurs with the first. Four cases of this sort underwent dilatation and curettage, with relief of the symptoms in 3, and 2 became pregnant.

Uterus Septus.—One example of this anomaly was seen, in which endometritis of one side, following a miscarriage, existed.

Double Vagina.—Two examples of a complete partition, and 3 in which merely bands stretched from the upper to the lower vaginal wall, presented. One of the complete partitions occurred in the case of uterus septus mentioned before.

Atresia Vaginae.—There were 3 cases of this kind in the writer's clinic. In one complete atresia at the hymeneal junction it was thought that a uterus could be detected, but no ovaries. The examination, however, was completed without an anesthetic. No menstrual molimina had occurred. Partial atresia of the hymen existed in 1 case. The menstrual blood had been able to imperfectly escape and severe endometritis was present. An acquired partial atresia near the vault of the vagina occurred in a young girl who gave the history of a purulent discharge and dysmenorrhea since an attack of diphtheria three years before. The atresia was excised, but her symptoms continued, so that the uterus was curetted several months later, with complete cure as a result.

GONORRHEA IN WOMEN.—The advance that has been made in our knowledge of gonorrhea makes an important chapter in the history of infectious diseases. Noeggerath¹ in 1871, eight years before the discovery of the gonococcus, gave a very accurate interpretation of its clinical relations; but information concerning its frequency and course in women is not comparable to our knowledge of the disease in men. The vagina, previous to Noeggerath's observations, was thought to be the chief seat of pathological change; an ovaritis, analogous, it was considered, to epididymitis in the male, occasionally occurred.

Noeggerath's conclusions, although often quoted, are here given for the sake of general comparison with the more modern views:

"1. Gonorrhea in man, as well as in woman, persists for the whole lifetime in spite of apparent cure.

"2. There is a latent gonorrhea in the man as well as in the woman.

"3. Latent gonorrhea in the man, as well as in the woman, may evoke in a hitherto healthy individual either a latent gonorrhea or the symptoms of an acute attack.

"4. Latent gonorrhea in the woman manifests itself in course of time by perimetritis, acute, chronic, or recurring; or by ovaritis; or as a catarrh of some definite portion of the genital mucous membrane.

"5. The wives of men who at any time of their lives have had gonorrhea are, as a rule, sterile.

"6. Such women, if they do become pregnant, either abort or bear only one child. Exceptionally three or four children are born.

"7. From the discharge of a woman affected with latent gonorrhea a fungus may be cultivated which is exactly analogous to that obtained from the discharge of acute gonorrhea in men."

The immediate effect of these conclusions was shown by the enthusiastic discussions that followed of their value, the ultimate effect of which was a more general and accurate knowledge of the disease. Thomas² in 1874, referring to Noeggerath's work, said: "Extraordinary as these views may at first sight appear, I have given them at length on account of their possible importance." McDonald³ and Sinclair⁴ in England, and Sanger⁵ in Germany, were prominent among those who fully appreciated the importance of the subject, and whose discussions marked the beginning of our information concerning the relation of gonorrhea to the puerperium.

The meaning of the terms perimetritis and ovaritis was soon made clear by the work of the abdominal surgeons. The discovery of the gonococcus and perfection in bacteriological technique have confirmed in general the purely clinical observations that had previously been made.

Frequency.—It is now very generally considered that gonorrhea is a very frequent cause of pelvic disease; however, observations based upon the study of any large series of cases have been rarely published. Schwartz,⁶ in a series of 617 pelvic cases of all kinds, had 112 that he termed suspicious; 77, or 12 per cent, surely had it, and gonococci were found in 49. Sanger,⁵ out of 1,930 hospital and private cases, found 230, or 12 per cent, suffering from some form of gonorrhea. Of 161 more recent cases he judges that it was present in 29, or 18 per cent. Of 389 pregnant women, 100, or 26 per cent, had a purulent discharge from the vagina, and 40 children born from

these women suffered from ophthalmia. Oppenheimer,⁷ among 108 pregnant women, found the diplococcus in the vaginae of 30, or 27 per cent; 12, or 13 per cent, of their children suffered from ophthalmia. Lomer⁸ found among 32 lying-in women 9, or 28 per cent, with diplococci in their vaginae. Sinclair⁴ calculated that 1 in 15 of his hospital patients suffered from gonorrhea. Van Schaich⁹ recently in New York found among 65 gynecological patients 17, or 26 per cent, in whom the gonococcus was present in the vaginal discharge.

Among 1,444 cases that the writer examined at the Vanderbilt Clinic, 348, or 23 per cent, were thought to be suffering from some form of gonorrhea. Their civil condition and ages are shown in the following table:

Number.	Age.	Single.
42	16-20	14
126	20-25	18
96	25-30	4
55	30-35	3
19	35-40	0
10	40-49	2
348		41

Diagnosis.—The diagnosis of gonorrhea in women cannot ordinarily be made by the presence of any one clinical sign.

Sänger,⁵ in the diagnosis of his series of his cases, relied upon the proof of an acute or chronic gonorrhea in the husband, or the history of the same; upon a purulent conjunctivitis of the baby's eyes; upon the presence of a urethritis; upon the enlargement of a vulvo-vaginal gland or its duct, or the presence of a purulent discharge issuing from the duct.

Dudley¹⁰ enumerates the following as of value in establishing the diagnosis of chronic gonorrhea in women:

1. Various pathological changes about the urethra, especially redness about the orifices of the ducts of the vestibule and the vulvo-vaginal glands.
2. Abscess of the vulvo-vaginal glands.
3. Chronic senile vaginitis.
4. Pernicious discharge from the cervix.
5. Dysmenorrhea from stricture at the internal os.
6. Endometritis.
7. Tubal diseases.
8. Ovaritis.
9. Different forms of uterine displacement.
10. Sterility.

The writer has considered a purulent inflammation of the urethra and of the vulvo-vaginal glands or ducts almost sure signs of the infection, especially if both were present at the same time. This opinion seems justified by the results of bacteriological examinations.

Bumm ¹¹ says that a purulent inflammation of the urethra in women is practically as sure a sign of gonorrhea as it is in men.

Menge ¹⁰ examined the discharge from 50 cases of purulent urethritis in women and found the gonococcus in 48. In 23 of these cases cultures as well as microscopical examinations were made. In the 2 cases in which the gonococcus was not found no cultures were made. They were both elderly women and no cause for the inflammation was found. He concludes that a purulent urethritis in women is almost exclusively of gonorrheal origin.

Gonococci are also found in a large proportion of the cases of chronic urethritis, but errors are more frequently made, because the discharge is less and the patients frequently pass their urine shortly before the examination. It is the writer's custom to first swab off the vestibule and meatus with cotton, and then, usually with two fingers, strip the urethra through the vagina from behind forward. Two fingers are used, because not only upward pressure is made, but, by approximating the fingers, pressure is also made upon the lateral walls of the urethra, and any pus pocketed in the ducts just within the meatus is squeezed out. Endoscopic examinations, although not used by the writer, would more surely eliminate errors in diagnosis.

The reliance upon a purulent inflammation of the vulvo-vaginal glands or ducts as a sign of gonorrheal infection is also justified by the results of bacteriological research.

Menge, ¹² from the bacterial examinations of the contents of sacs removed by operation without rupture, so that they were examined under aseptic conditions, concluded that most cases of such inflammation were caused by gonorrhea.

Bumm ¹¹ also says that a purulent or muco-purulent discharge from the mouths of the ducts shows gonorrheal infection. Mere redness about the entrance of the ducts, so much relied upon by Sanger and Dudley, he does not consider of much value.

The presence of venereal warts, or the so-called pointed condylomata, has been considered as one of the very reliable

signs of the presence of the infection in the writer's series of cases. Full credence, however, has been given to the opinion of Bumm and others that filth and moisture from any cause may incite their appearance.

Vulvitis and vaginitis in adults, without the presence of other lesions, are of no value in diagnosis. Redness and even swelling of the mucous surfaces of both the vulva and vagina often occur from the stagnation of discharges due to a variety of causes. This should be strongly emphasized, as many even at the present time use the term vaginitis as synonymous with gonorrhea.

An endocervicitis caused by gonorrhea does not differ essentially from that produced by other causes, and *per se*, without a bacteriological examination, cannot be identified.

The same is true of the gonorrheal lesions of the uterine body, of the tubes and ovaries. Other causes, however, may oftentimes be excluded, and the course with the previous history will help to make the diagnosis reasonably certain.

It would appear, finally, that our chief reliance would be in the identification of the gonococcus in the discharges. It is very generally accepted, however, that a considerable error may be made if dependence is placed upon this method alone. Neisser¹³ admitted an error of 50 per cent in men and much more in women. Bumm¹¹ says that, if either method is used alone, greater accuracy may be attained by the observation of the clinical history and course.

The writer, in the diagnosis of the acute cases in general, has relied upon the presence of a purulent urethritis, of a purulent inflammation of the vulvo-vaginal glands or ducts, and of venereal warts. A history of these conditions in the chronic cases; a knowledge of the presence of a gonorrhea in the husband; the time of the first appearance of symptoms, as, for instance, just after marriage, have all been considered in making up the diagnosis. A microscopical examination of the discharges, especially of those coming from the cervix, has been made in many of the cases.

The observation of the disease will be given by describing separately the occurrence of the lesions in the different pelvic organs.

Urethra.—The urethra was found to be by far the most frequent seat of the disease in the acute cases. Fifty-five out of 58 patients who had been infected less than six weeks had purulent urethritis. Two of the three who had no signs

of urethritis gave symptoms of having had such an attack a short time previously. Of the 290 patients who had been infected longer than six weeks, there were only 71 who either did not have urethritis at the time of examination or who gave no history of any previous attack.

The symptoms of acute urethritis in women do not, in general, compare in severity or in duration with those observed in men. The trouble often disappears without treatment in from three to four weeks. The subjective symptoms usually disappear somewhat earlier.

The treatment that has generally been adopted in the acute cases has been extremely simple. During the first few days either simple alkaline diluents or the Lafayette mixture have been given internally. Hot sitz baths, frequently repeated, and cleansing of the external genitals with a hot, mildly antiseptic solution, were always advised. A common error in the treatment of such cases is to order vaginal douches, on the supposition that thus infection of the other genital organs may be avoided. Examinations and manipulations through the vagina, unless done with some definite purpose, should be avoided. The subjective symptoms usually disappear in a few days under this treatment, and, as soon as the acuteness of the disease has disappeared, injections of silver nitrate (five grains to the ounce) have been made at intervals of three or four days, usually by means of the ordinary medicine dropper. It is a clinical fact that much stronger injections can be safely made to the female than to the male urethra. The injections have caused only a slight discomfort for a few minutes, and the intervals between injections are made longer as the case improves, so that usually in three or four weeks the discharge has entirely disappeared. There is no doubt, however, that in many cases the discharge will disappear just as soon without the injections, but a permanent cure cannot be so well assured.

It has not been learned from the observation of these cases what percentage of the acute cases become chronic, but certainly not nearly the same proportion do as in men. Thirty-two cases of chronic urethritis were observed. This number may be too small, as endoscopic examinations were not made. One case of stricture of the urethra caused by gonorrheal urethritis was noted. The stricture was cut and sounds passed for about two months, with complete cure.

The treatment of the chronic cases consisted in injections of silver nitrate (five to ten grains to the ounce), and irrigation

by filling the bladder with a mildly antiseptic solution and allowing the patient herself to pass it out. The results in general were satisfactory, and the treatment has not had to be so long continued as is usual with the disease in men.

The infection spread to the bladder and caused a true gonorrheal cystitis in only three cases. One case of very long duration improved very little under treatment and disappeared from observation after a short time. The other two cases were soon cured by frequent irrigations of the bladder. The infrequency with which gonorrhea causes cystitis in women has been noted by many observers.

Vulvo-vaginal Glands.—Bumstead¹⁴ was the first observer to note the frequency of gonorrheal inflammation in this location. Thirty-six cases of involvement of these glands were observed by the writer. The gland or duct formed a distinct tumor in 21; 11 were recent cases and had formed a tumor for the first time; the other 10 had existed for a long time or were exacerbations of old cases. The duct was patent and pus oozed out of the orifice in 15 cases. Both glands were involved in 4. Five of the cases in which a tumor had formed were excised, and the bulk of the mass was found to be the duct distended with pus, and it is thought that in most cases the larger part of the tumor is made up in this way.

Menge,¹² in connection with the bacteriology of these glands, made some histological examinations of sacs removed by operation and found two conditions. First, and the most common one, was the so-called pseudo-abscess, in which the dilated sac arose from either preformed acini of the gland or from the duct. The interior was lined by cuboidal epithelium. The second condition, which he called a true abscess, consisted of a sac made by the breaking down of several acini of the gland into one, the epithelium lining the interior of which had been transformed into the flat variety.

The course of these abscesses, unless completely excised, was essentially chronic; rarely did they rupture and completely disappear. An effort was made by the writer, in several instances in which there was a purulent inflammation of the duct with open orifice, to prevent the formation of a tumor by frequent cleansing about the orifice and by pressing out the contents. This was apparently successful in several cases, but the observations were not numerous enough to make a definite statement. Many of the text books, in their description of excision of these abscesses, warn the operator against

making an opening upon the mucous surface. A second abscess appeared after two of the writer's operations, and it was thought that they formed from a part of the duct that was left near the orifice. If this explanation is correct, it would seem to be better to make the opening upon the mucous surface and completely excise the duct.

Vulva and Vagina.—There appears to be considerable difference of opinion among observers as to the frequency of gonorrheal vulvitis and vaginitis in adults. Gonorrheal vaginitis in children, in whom the mucous membrane is softer and more vulnerable, is generally acknowledged to be the important lesion of the disease.

E. Bieck¹⁵ states that out of 302 chronic cases of gonorrhea he has observed a vaginitis in 26, or 8.6 per cent. He found the upper part of the vagina most often involved; in 104 fresh cases he found the vagina always diseased.

Bodenstein¹⁶ also notes the frequency of a chronic gonorrheal vaginitis, usually located in the posterior fornix.

Currier,¹⁷ too, mentions the frequency of vaginitis and the infrequency of urethritis.

Bumm,¹¹ however, on bacteriological grounds, says that he has seen only five fresh cases of gonorrheal vaginitis. He makes a sharp and important distinction between those cases in which the vagina is simply secondarily reddened from a stagnating discharge, and those in which a real gonorrheal inflammation, with invasion by the gonococci of the epithelium, exists.

The writer has observed the vagina reddened, tender, and bathed in pus in 17 fresh cases. Seven of these, however, occurred in pregnant women, in whom the softened and congested condition of the vagina would naturally be favorable for infection. Both the vulva and vagina were so badly swollen and tender in three cases that it was almost a week before a proper examination could be made; the vagina at the end of that time resembled the appearances that are usually presented in bad cases of senile vaginitis.

Gonococci were found in the discharge of three cases of what appeared to be ordinary senile vaginitis. Two of these cases admitted to recent exposure, and in one case there was a distinct history of an old uterine gonorrhea with no probability of recent infection.

Dudley¹⁰ believes that an old gonorrheal discharge from the cervix is a frequent cause of senile vaginitis. Bumm¹¹ denies that gonorrhea has anything to do with it.

A most important therapeutic point has been demonstrated by several observers, namely, that vaginal douches in gonorrheal vaginitis are a frequent cause of the advance of the infection to the uterus. Bieck¹⁸ mentions it, and Krönig¹² has very successfully demonstrated its pernicious effect in parturient women.

Cervix.—The percentage of cases in which the infection involves the cervical mucosa is difficult to obtain, as few statistics in regard to it are available.

Pryor¹⁹ examined 197 prostitutes in New York and found gonococci in the cervical discharge of 31.1 per cent; of 53 women who had been infected with gonorrhea and whom he had observed five months, gonococci were found in the cervical discharge of 75 per cent.

The writer found that among 30 cases that had been infected from two to three months, all except 2 had signs of the disease in the cervix. A microscopical examination was made and gonococci were found in 11. The reasons for believing that the infection existed in the other 17 were based upon clinical signs. It was perfectly well known, too, in forming this opinion, that a gonorrheal endocervicitis, *per se*, does not differ essentially from endocervicitis due to other causes.

The treatment of the endocervicitis itself and the prevention of its advance to the uterine body was very unsatisfactory. There seems to be more danger in doing too much than in doing too little. Total abstinence from local applications in very acute cases, except cleansing the vagina of the discharge as it forms, appears to give the best results. Avoidance of exercise, and even rest in bed during the menstrual period immediately following the infection, may possibly in some measure prevent its further advance.

When the acuteness of the condition has subsided, local applications, provided the external os is sufficiently open, seem to do some good. The applications that have been found most useful are: pure pyroligneous acid, iodized phenol, and strong solutions of silver nitrate. It was observed also that, previous to the applications, curettage of the cervical canal with a small sharp spoon was often very efficient. Dilatation of the cervical canal under an anesthetic was often necessary, in case the external os was small, in order to thoroughly scrape and cleanse it.

Body of the Uterus.—The invasion of the uterine body is unfortunately very frequent. It was found that among the

30 cases that had been infected from two to three months, 18 were suffering from a recent endometritis, for which no other cause than gonorrheal infection could possibly be assigned. Among 34 cases of infection that had existed from three months to one year, there were only 4 that were free from symptoms of endometritis. In all of the cases with infection longer than a year the body seemed to be involved.

The symptoms of the endometritis that were present in these cases offered a few characteristic features: Discharge of a sero purulent or purulent character was almost always present. Disturbances of menstruation were marked, and differed somewhat in character with the age of the infection. Metrorrhagia was frequently present in recent infections; 46 among 99 patients who had been infected less than four months had this symptom present; it was more rarely observed, however, in older infections. Menorrhagia was present in 110, or 31 per cent, of all cases, acute and chronic; there were only 8 among the 99 patients with infection less than four months in whom this symptom was absent; 48 per cent of those infected from four months to one year suffered from menorrhagia, while of those who had been infected over one year it was present in 25 per cent. Lessened menstruation increased in frequency as a symptom with the age of the infection. It was noted as present in 104 of all cases, but occurred rarely during the first few months; after the first year it appeared more frequently. A pathological reason for this was demonstrated by the writer in 5 patients from whom the uterus had been removed because of other more serious pelvic lesions. Sections of the uterine mucosa in all of them showed a distinctly atrophic condition, the chief features of which were the marked decrease of glandular structure and a corresponding increase of connective tissue. The menstruation was neither increased nor diminished in 134 cases at the time of observation. Dysmenorrhea, next to discharge, was the most frequent symptom noted; it occurred in 230, or 80 per cent, of all cases. Gonorrheal endometritis, according to the observation of these cases, more frequently than endometritis from other infections gives the symptoms of decreased and painful menstruation.

The treatment of uterine gonorrhea without anesthesia has been practically without result. Avoidance of local treatment during an early acute attack has been the rule. When the infection has reached the uterine body, dilatation of the cervix and curettage of the uterine mucosa under an anesthetic has

been advised. The best result noted without such treatment was an apparently gradual atrophy of the mucous membrane and partial disappearance of the more marked symptoms.

Appendages.—Cushing,²⁰ quoting Bumm, says that 10 per cent of all cases, in spite of treatment, have severe pelvic disease. The infection was found to have involved the uterine appendages in 168, or 48 per cent, of the writer's cases. The diagnosis, made by the bimanual examination, was confirmed in a great many by operations performed later.

Collections of pus were thought to be present in 39 cases. The uterus was found retroverted and adherent to diseased tubes and ovaries, but with no real tumor formation, in 47. The involvement of the appendages in 76 was shown only by a slight thickening and tenderness in the sides of the pelvis, while the uterus remained in its normal position; the only evidence of disease beyond the uterus in 6 was in a thickening and tenderness about the utero-sacral folds.

The length of time that it takes for the infection to reach the appendages must certainly vary. Schwartz⁹ says that it takes from two to three months. The most rapid infection that the writer noted was two weeks. There were only 4 cases among 66 that had the infection less than three months in which diseased appendages could be distinctly felt; while of 68 with infection from three months to one year there were 7, making 11 out of 134 during the first year of infection. These figures may be compared with those given on uterine infection, which showed that only 4 out of 134 escaped. There were undoubtedly many cases of mild tubal and ovarian disease that were not detected. It may be concluded from the conditions of the pelvic organs noted in these cases that gonorrhea very frequently causes permanent lesions which rob women of their health, and in a much less number of cases causes accumulations of pus that require dangerous operations to relieve. The lately acquired method of often removing the uterus with the diseased appendages would also, from these observations, appear to have a sound pathological basis.

Sterility.—The relationship of gonorrhea to child-bearing forms a very important part of the subject.

Gross²¹ says that 17 per cent of sterile marriages are due to the husband, and Sänger makes the husband responsible for one-third.

The writer found that 234 of the 348 infected women had never been pregnant; 62 who had been pregnant before infec-

tion remained sterile afterward. Subtracting 2 who were infected after the menopause and 17 who had anatomical peculiarities of their pelvic organs that commonly by themselves cause sterility, we find 277, or 80 per cent, who were absolutely sterile after infection.

Gonorrhea in women, therefore, conceding a certain percentage as due to the male, would appear to be a very frequent cause of sterility.

Sänger⁶ and Noeggerath¹ describe what they call "one-child barrenness." Many women after infection have one child and afterward remain sterile. Thus, among Noeggerath's patients who were married to men previously infected, 52 per cent who went to full term had only one child. The writer noted that 47 per cent of the women who went to full term after infection had only one child.

The large number of premature interruptions of pregnancy among women infected with gonorrhea is very striking. Currier says that gonorrhea never causes miscarriages. The writer found that among 62 non-infected women who had 108 pregnancies, 24, or 22 per cent, terminated prematurely; while of 52 infected women who had 97 pregnancies, 42, or 43 per cent, terminated prematurely.

There were 10 infected women who had one child and one or more miscarriages, and 16 others in whom all of the pregnancies resulted in miscarriages.

Puerperium.—Comparatively few observations have been published upon the relation of gonorrheal infection to the puerperium. It would seem reasonable to suppose, however, that the soft and congested condition of the pelvic organs, together with the discharges that are present at that time, would be fertile soil for a chronic infection of any kind to renew its activity and work perniciously upon the puerperal period.

Sinclair⁴ thinks that many cases of puerperal pyosalpinx are the result of the assumption by a chronic gonorrhea of a comparatively virulent type under the favorable circumstances of the puerperium.

McDonald³ believes that severe forms of puerperal fever may arise from this cause.

The modern pathological and bacteriological ideas, however, would certainly indicate that serious forms of sepsis from gonorrhea alone must be at least infrequent. The gonococcus is not generally thought to be capable of invading deeper than

the subepithelial layer, although Wertheim asserts that it does. The gonorrheal infection spreads by direct continuity of mucous membrane, and, upon reaching the serous layer of peritoneum through the tube, is stopped by the barrier of adhesions thrown out. The worst result of such a process would be the formation of an abscess surrounded by a localized peritonitis that soon subsides.

Säuger⁵ believes that a chronic gonorrhea often renews its activity under the favoring conditions of the puerperium, but manifests itself by symptoms that appear late, perhaps six to eight weeks post partum. Kronn denies this late appearance.

The more recent observations of Krönig¹² furnish the best data that we have on this subject.

He found that among 50 women infected with gonorrhea before labor, 9 only had a puerperium free from fever. Early rupture of the membranes was one and a half times more frequent in cases that had had a gonorrheal endometritis previous to pregnancy. Fever is usually not so high as in other infections, but the number of days they were sick was longer than with the streptococcus infection. The first and highest rise of temperature occurred most often on the third day. Gonorrhea, he thought, was sometimes transferred to other parts of the body, but slowly. It was his opinion that it may cause pyosalpinx by the eighteenth day.

Bumm,¹¹ in speaking of the relationship of gonorrhea to other bacteria, says that a cervical gonorrhea in pregnancy causes a discharge from the vagina that may furnish media for pathogenic bacteria which in the puerperium cause fever. Gonorrhea, too, he thinks, may change tissues so that other bacteria may enter, and also makes tissues less elastic so that injuries are more frequent and hence more gates for infection are offered.

The histories of the writer's cases were not complete enough to make any important conclusions concerning this portion of the subject, but 17 per cent of the women who bore children after gonorrheal infection gave a distinct history of puerperal infection. One case had been in bed six months after childbirth. There were undoubtedly many other mild cases, but histories of such were hard to obtain. This percentage of 17 may be compared to the last report of the New York Lying-in Hospital,²² in which the percentage of puerperal infection of all kinds is given as 3.23 per cent.

(To be continued.)

THE RESULTS OF MODERN ASEPTIC SURGICAL TECHNIQUE,
 AS DEMONSTRATED BY A SERIES OF ONE HUNDRED AND FOURTEEN
 CONSECUTIVE, UNSELECTED ABDOMINAL SECTIONS
 WITHOUT A DEATH; WITH CLINICAL AND
 PATHOLOGICAL REPORTS.¹

BY

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BEFORE beginning to deal with the subject of my paper, I wish to thank the Society for the honor conferred upon me in the invitation to address them this evening, and to express the great pleasure that it gives me to be present.

In thinking over a subject for a paper that might be of interest not only to the specialist but to the general practitioner as well, it came into my mind that it might not be out of place to take as the basis for my remarks an analysis of the results that I have been able to obtain during the past year in abdominal surgery.

The general practitioner is frequently obliged to operate in cases of emergency in order to save the life of his patient, and upon his advice it depends largely whether other patients shall or shall not put themselves in the hands of the specialist. The specialist, of course, is deeply interested in the carrying out and the development of any procedure that will better his own results, while at the same time it advances medicine and surgery in general. It has been my good fortune in the early part of my experience to have enjoyed surroundings that have been of signal advantage to me. The association of laboratory and hospital training has done much to bring about practical results in our surgical procedures of to-day, and for the past ten years I have been especially interested in the development of the aseptic surgical technique that I will describe to you in my paper to-night, and the methods which are illustrated in this series of cases. The list of 114 consecutive, unselected abdominal operations without a death belongs to a period of

¹ Read before the Wayne County Medical Society, at Detroit, Michigan, March 8, 1900.

twelve months between July 21, 1898, and December 2, 1899; during the remainder of the time between the dates mentioned I was away.

It has often been said that the surgeon or physician can learn more from one failure than from a hundred successes. And yet, profitable for the future as is bitter experience, prosperity has its own lessons, and the careful analysis of any long series of successful cases, with the view of determining what are the factors which in the main have conduced to these favorable results, can hardly be without profit. Again, if in such a series of cases thorough macroscopic and microscopic examinations have been made of the various specimens removed, we are able, to some extent, to determine the frequency of certain pathological conditions, and also their bearing upon the outcome in any individual case.

The 114 patients were operated upon as they presented themselves, and no attempt was made to select cases. I would call your attention to what in my opinion are the most important factors upon which the favorable results depended, and I think these are to be looked for in careful operative technique and the proper care of the patient both before and after operation. It is true that with experience there comes increased manipulative skill on the part of the operator—and that this is a factor there can hardly be any doubt—but I have for a long time been of the opinion that the greatest danger to the patient lies not so much in accidents which may arise from defects in manipulative skill as in the possible carrying into the wound of pathogenic organisms, with a resulting sepsis. Convinced, therefore, that prophylactic measures in this respect have in large measure conduced to these successful results, I shall venture to-night to briefly outline the technique which we have followed, and shall emphasize a number of the points dealing with some of our difficulties and our solutions of them.

The Organization for Operations.—In order to carry out with any degree of certainty an aseptic technique in all operations, it is necessary for the surgeon to first organize his staff. He must not only have competent assistants and nurses, but each must be taught his or her special duties. To borrow an expression from the football field, the operator and his assistants must understand how to do “good team work.” With a systematic routine, every one having his place and his work clearly defined, there will be few hitches, and there will be less likelihood of a break in one link of the chain, which would

render the whole technique futile. As regards assistants, I have been especially fortunate both in numbers and quality, and I take this opportunity of thanking each one of my fellow-members for their conscientious work. As a rule, the members of the staff are arranged as follows: The first assistant stands opposite the operator and helps him directly, and, unless his hands are otherwise employed, the instruments and sponges are handed to him. The second assistant (or, if necessary, a nurse), on one side of the table, has charge of the instruments, while the third assistant looks after the sponges or dressings which may be required during the operation. The fourth assistant has charge of the anesthetic and devotes his whole attention to this duty. The third assistant takes cultures, if necessary, during the operation, or makes microscopical examinations of tissues or fluids. The nurse watches for opportunities to be of service to the surgeon or his assistants.

With reference to the patient, I shall speak of (1) the care of the patient before operation, (2) the preparation of the field of operation, (3) the care of the patient at and after operation.

1. Whenever it is possible it is our custom to keep a patient under observation for a few days previous to an operation. In this way we can become acquainted with the condition of the various organs of the body. A thorough physical examination is made. The urine, and if necessary the blood, is carefully examined, and any indications by which her general condition may be improved and her powers of resistance proportionately increased are followed out. The bowels are kept regular and only light diet is allowed. For the twenty-four hours immediately preceding the operation the diet is reduced to milk and broths. As a rule, except when the patient is weak and needs stimulants, nothing is given by the mouth during the eight hours before the anesthetic is administered. In this way many inconveniences both to the patient and the operator are avoided. The bowels are moved thoroughly by an enema before the patient is put upon the table. The necessity for this procedure will be evident to those who have operated upon cases in which it has been omitted.

2. In order to obtain a practically aseptic field of operation the following procedures are carried out:

(a) A bath of soap and water and a vaginal douche of a one per cent carbolic acid solution are given daily for three days before the operation.

(b) The hair of the abdomen and pubes is shaved on the night preceding the day of the operation.

(c) The parts are given a thorough scrubbing with (a) soap and water, (b) alcohol and ether, (c) bichloride of mercury (1 : 1000).

(d) A poultice of green soap is applied for from one to three hours.

(e) The soap is removed by scrubbing with a brush and hot water.

(f) A compress of bichloride (1 : 1000) is applied, and is kept on until the patient is brought to the operating table.

After the patient has been anesthetized and placed upon the operating table, the compress is removed and the following additional steps are carried out:

(g) The field of operation is scrubbed with soap and warm sterile water.

(h) It is sponged again with alcohol and ether.

(i) In some cases it is washed with solutions of permanganate of potassium and oxalic acid, as in the disinfection of the hands, and subsequently irrigated with warm sterile water or salt solution.

(j) It is irrigated with one litre of a solution of bichloride of mercury (1 : 1000).

(k) It is irrigated with sterilized salt solution to remove any excess of sublimate.

3. During the operation the patient is properly clothed, and every precaution is taken to prevent her from being chilled. Over the fresh nightgown a warm wrapper is placed. Stockings reaching well above the knees are necessary for warmth as well as for the avoidance of unnecessary exposure. To the after-treatment I shall refer later.

Preparation of the Operator and his Assistants.—We have found it of great service that both the surgeon and his assistants shall wear sterilized suits while engaged in the operating room. A complete change of costume has many advantages. Our operating suits are made of twilled muslin. They can be easily sterilized and are more suited to the high temperature of the operating room than ordinary clothes. Canvas shoes with rubber soles are worn. The suits are sterilized in the autoclave and are put on in the dressing room adjoining the operating room.

For the sterilization of the hands and forearms of the operator and his assistants, chemical disinfectants by themselves

have been found to be almost valueless. We rely upon the following technique, which has been submitted to bacteriological tests: The operating room suits with short sleeves having been put on, the hands and forearms are scrubbed vigorously, for ten minutes by the watch, with a stiff brush previously sterilized by steam, and with green soap or sterilized oleine soap, the water used being as hot as can be borne and being changed at least ten times. In order to avoid any possible contamination from the necessity of turning the spigots off and on with the hands, I have had constructed an arrangement by means of which this can be done equally well with the feet. The excess of soap is washed off in hot water, and the hands and forearms are then immersed for two minutes in a sterilized warm saturated solution of permanganate of potassium. They are next washed in a sterilized warm saturated solution of oxalic acid until the stain of the permanganate has completely disappeared, rinsed off in sterile water, and finally are immersed in a solution of bichloride of mercury (1:500) for two minutes. After the cleansing of the hands is completed, sterilized rubber gloves are put on.

It is customary with us for the operator and any of the assistants who come near the field of operation to wear a small sterilized muslin cap. In this way the possibility of any dandruff from the head coming in contact with the wound is avoided.

Preparation of Instruments.—The instruments are boiled for five minutes in a one per cent solution of carbonate of sodium. The wire basket containing them is then removed from the solution and the instruments are turned out into sterilized trays, which contain sufficient warm sterilized water to cover them. Between operations that follow one another in rapid succession, or if some of them by chance have come in contact with non-sterile material during an operation, the instruments, after being carefully washed in cold water, are quickly sterilized in the boiling soda solution. The procedure is actually timed by a watch kept hanging in the operating room.

Trays made of thick glass or porcelain enamelled ware are employed to keep the instruments in at the time of the operation. They are first washed thoroughly with water and then filled to the brim with an aqueous solution of bichloride of mercury (1:500), which is allowed to remain in them for an hour before they are needed for use. Just before the operation

they are finally rinsed out well with sterile water, and, after being placed upon the table, are filled with enough sterilized water to cover the instruments. If they are required for a second operation following closely upon the first, they are cleansed by rinsing them out with cold water to which hot water is cautiously added, then with bichloride solution (1 : 500), and lastly with sterilized salt solution.

Sutures and Ligatures.—Silk, silkworm gut, catgut, and silver wire were employed.

Surgeon's cable twist is used in five sizes. The ligatures are wound on glass reels, and the reels are placed in heavy glass tubes, the mouth of each tube being plugged with ordinary cotton batting. The empty tubes, plugged with cotton, have been previously sterilized in the hot-air oven. It is important not to use absorbent cotton for the plug, as it will take up moisture from the air, and fungi will be more likely to grow through it. The tubes with the ligatures in them are sterilized in the Arnold steam sterilizer or autoclave on two consecutive days for half an hour each time. Just before using we sometimes boil the ligatures for two minutes in plain water.

Silkworm gut is sterilized in the same way. Silver wire is sterilized by boiling.

Catgut. We have been using with much satisfaction Kili-ani's dry catgut in different sizes, also St. John Levan's and Van Horn's chromicized catgut. So far as we have been able to judge from the number of cases in which we have used these catguts, they have been, on the whole, very satisfactory. The only criticism that we have to offer would be that in using the large size of the chromicized gut we have found that the suture sometimes does not become absorbed, but gradually works its way to the surface and is then discharged. In some instances a drop or so of pus will be present as the result of this shedding of the suture. In other cases a small amount of sanious fluid will at times escape.

Absorbent cotton, absorbent gauze, bandages, and towels are sterilized in the autoclave.

We use sponges made of sterilized gauze. The gauze is cut in different sizes, the edges folded over and hemmed so that no loose threads are left in the field of operation. They can be easily sterilized by means of steam heat immediately before the operation. In this way we are able to do away with the tedious preparation of marine sponges; and it is never necessary to use the same sponge for another operation, as the gauze is very cheap.

Irrigation.—We irrigate entirely with normal salt solution. The solution is poured into the abdominal cavity directly from the glass graduates.

Powder.—The powder that we use for putting on a wound is iodoform, or iodoform 1 part with boric acid 7 parts. These are placed in ignition test tubes and then sterilized in the autoclave.

Drainage.—We have not employed a glass tube for the last six years. Whenever it is necessary to drain we use strips of plain sterilized gauze, which takes care of any bleeding which it has been impossible to control by means of ligatures during the operation. We also drain with gauze in those cases in which there has been a rupture of the bowel and in which it has been exceedingly difficult or impossible to close the tear.

Post-operative Care of the Patient.—After every abdominal section the abdomen is thoroughly washed out with sterilized salt solution, after which, from 300 to 500 cubic centimetres of salt solution being left in the abdominal cavity, the patient is placed, with the head low, in the postural position for drainage for twenty-four hours. Immediately after the operation the patient is put to bed, kept in the recumbent position, and closely watched until she has fully regained consciousness. Every precaution is taken to keep up her strength. After the operation, to counteract any symptoms of shock, we give her one-thirtieth of a grain of sulphate of strychnine every two hours for six hours. In the first two doses we put also one-seventy-fifth of a grain of sulphate of atropine. The strychnine is then given every three hours or every four hours in doses of one-fortieth or one-sixtieth of a grain, according to the condition of the patient. Before the patient leaves the operating table she is given an enema consisting of one-thirtieth of a grain of sulphate of strychnine with twenty grains of carbonate of ammonium and two ounces of brandy in a litre of salt solution. In every case she is also given by rectum two ounces of black coffee, in two doses an hour apart, on her arrival in the ward after the operation. Every three to six hours after this she is given a nutritive injection which is made up of the following constituents:

Peptonized milk.....	30 c.c. ($\frac{3}{4}$ i.).
Whiskey.....	30 c.c. ($\frac{3}{4}$ i.).
Whites of two eggs.	
Common table salt.....	1.5 (grs. xxiv.).

We endeavor to avoid any exposure to draughts in this con-

dition of lowered resistance, as a sudden chilling might easily prove to be the exciting cause of a serious bronchitis or pneumonia. Hot cans are placed around the patient in the bed between blankets. Fluids or other foods by the stomach are not given during the first six or twelve hours, except small quantities of toast water or warm water at intervals of from fifteen to twenty minutes. As soon as the nausea has ceased and the bowels have been well opened, we give the patient nourishment by the mouth, beginning with small quantities of milk and lime water, in the proportion of two parts of milk to one part of lime water, slightly increasing the amount of the former every day, and diminishing the quantity of the latter, until the patient is taking three parts of milk to one part of lime water. We do not give cold water to drink, if she is thirsty, as in our experience it is not nearly so efficacious as hot water. With ice or cold water the patient is never satisfied, but is always asking for more; and then, too, the ingestion into the stomach of much cold water soon causes nausea and may thoroughly upset the digestion and thus add considerably to the discomfort of the patient. It is seldom that we have a patient complaining much of thirst following an operation. If this, however, is distressing, we are often able to relieve it by giving sips of hot water, or by washing out the mouth with warm water at intervals of every hour or so, or by giving an enema consisting of 500 cubic centimetres (one pint) of tepid water several times during the twenty-four hours. After the first or second day, if the patient still complains of nausea, we are sometimes able to relieve it by giving two or three tablespoonfuls of very hot water containing five to ten grains of bicarbonate of sodium to the ounce of water. We repeat this at times every hour or so until the nausea ceases, or supplement it with a mustard leaf over the epigastrium.

Drugs.—We do not use opium or any of its derivatives as a routine measure for pain following an operation, and always try other procedures before resorting to morphine. We find at times that a very nervous patient will frequently be quieted by rectal injections of an ounce or two of milk of asafetida or of twenty to thirty grains of bromide of potassium. But if these measures do not relieve the restlessness, or if the patient is suffering with severe pain, we do not hesitate to give the deodorized tincture of opium in twenty to thirty drop doses by the rectum or one-sixth to one-quarter of a grain of morphine given hypodermatically once or twice. Morphine, however, as we said, never forms a part of our routine treatment.

Bowels.—The bowels, as a rule, are opened on the second day, sometimes on the third day. We generally accomplish this by giving the patient two grains of calomel by the mouth the morning after the operation, followed eight hours later by an injection of two ounces of glycerin high up into the rectum, and again in two hours by an injection of a pint of soapsuds and warm water. If the last does not prove effectual within two hours after its administration, we give an injection of:

Plain warm water.....	500 c c. (O i).
Olive oil.....	60 c c. (ꝓ ii).
Turpentine, from a teaspoonful to a tablespoonful.	

This injection is repeated every two hours, if necessary two or three times, until some effect has been produced. If no fecal movement follows the last injection, we then begin with drachm doses of Epsom salts by the mouth every hour until three or four doses have been taken. If this does not prove effectual by 7 or 8 o'clock the next morning, we give a seidlitz powder or employ again the injection of water, olive oil, and turpentine. In some cases we find it necessary to give a third of a bottle of the effervescent citrate of magnesium every three hours until eight ounces have been taken. Between the doses of magnesium we frequently employ rectal injections.

Catheterization.—Patients are catheterized, as a rule, every eight hours. We encourage them to pass urine, and in not a few instances it is not necessary to catheterize them at all.

Position.—We prefer to keep the patient in the dorsal position for the first twelve hours following an abdominal operation, but if she complains of great discomfort, especially of pain in the back, she is turned on her side, with pillows to support her spine, for periods of five to ten minutes at a time, several times during the twenty-four hours. The procedure will often give great relief.

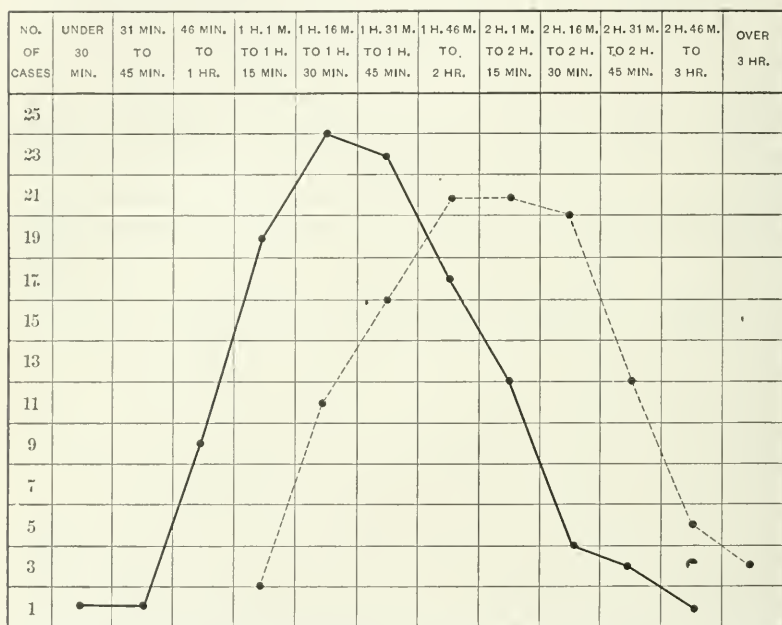
Tympanites.—If any special amount of tympanites occurs we place the tube in the rectum for half an hour to an hour at a time; as a rule this will relieve the patient. If this does not succeed we often give an injection of sweet oil, water, and turpentine, and employ at the same time a mustard leaf or a warm application, such as a turpentine stupe, over the epigastrium.

In conclusion, I would say that it is certain that serious septic infection could hardly have been avoided through a series of 114 cases had not the maintenance of asepsis through a careful technique been in every case insisted upon. I feel

that the use of sterilized rubber gloves and sleeves, and of the cap for the head, largely diminishes the danger of infecting the wound. I think also that the irrigation of the abdominal cavity with hot salt solution does much to prevent shock and to minimize the virulence of any septic poison which may be present at the time of operation.

ANALYTICAL REPORT.

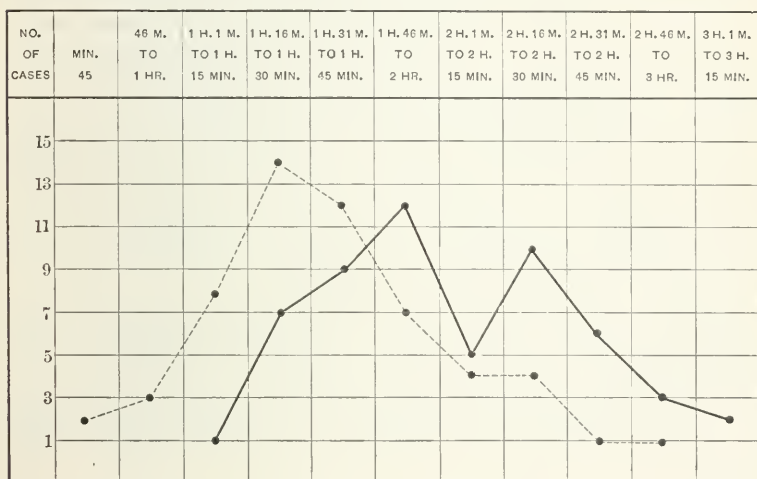
In the 114 cases the oldest patient was 68, the youngest 17, the average age being 31 years; 77 were married, 25 were single, 12 were widowed. The chief clinical manifestations were



Composite anesthesia and operation chart. Dark line shows the time for the anesthetic. Dotted line shows the time for the operation.

as follows, many patients showing several of these symptoms: pain in the lower part of the abdomen was present in 91 cases; backache was present in 42 cases; dysmenorrhea was present in 42 cases; leucorrhea was present in 38 cases—in 3 cases this was of acute specific origin; menorrhagia was present in 24 cases; metrorrhagia was present in 2 cases; there was frequent and painful micturition in 14 cases; irregular menstruation present in 22 cases, scanty menstruation in 5 cases; symptoms due to organic heart lesions present in 3 cases; dyspareunia present in 1 case. Cases in which the lateral struc-

tures could not be made out without anesthesia, 63; cases in which the lateral structures could be made out without anesthesia, 51—in these 51 cases the examination under anesthesia confirmed the results of the examination without anesthesia, except that in 7 of these 51 cases the tubes and ovaries were found to be adherent on both sides, whereas at the examination without anesthesia only one side was found to be involved. Average time of anesthesia, 2 hours 7 minutes; longest time, 3 hours 15 minutes; shortest time, 1 hour 5 minutes. Average time for total number of operations, 40.1 minutes. Average time of operation, 1 hour 33 minutes; longest time, 2 hours 50 minutes; shortest time, 25 minutes. Average time



Composite anesthesia and operation chart for fifty-six plain section cases. Dotted line shows time of operation. Dark line shows time of anesthesia.

of operation for total number of operations (114), 29.3 minutes. Longest time of anesthesia in 56 plain sections, 3 hours 5 minutes; shortest time of anesthesia in 56 plain sections, 1 hour 5 minutes. Longest time of operation in 56 plain sections, 2 hours 35 minutes; shortest time of operation in 56 plain sections, 34 minutes. Average time of anesthesia for 56 plain sections, 2 hours 4 minutes. Average time of operation for 56 plain sections, 1 hour 35 minutes. Average time of anesthesia for total number of operations (91) in these 56 sections, 1 hour 14 minutes. Average time of operation for total number of operations (91) in these 56 sections, 59 minutes.

Results.—In all 114 cases the patients recovered.

Irrigation.—In every case the abdominal cavity was irrigated with salt solution.

Removal of the vermiform appendix as a supplemental procedure in 24 cases.

Highest temperature, 103.9° F.	Lowest maximum temperature, 99.5° F.
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Highest pulse, 160.	Lowest maximum pulse, 88.
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Highest respiration, 44.	Lowest maximum respiration, 22.
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Highest average maximum temperature, 100.9° F.

Highest average maximum pulse, 111.

Highest average maximum respiration, 30.

The *bowels* were opened on the second day after operation, except in 8 cases in which they were opened on the third day, in 1 case on the day of operation, and in 1 case on the fourth day.

Urinary Analysis.—Albumin was found in 20 cases, and in 18 of these granular and hyaline casts were present. In 9 of these cases the albumin and hyaline casts were only demonstrated after the administration of the anesthetic.

Nausea and Vomiting.—In 80 cases there was a slight amount of nausea and vomiting during the first few hours after anesthesia. In but 1 case was it excessive, and the symptom generally ceased as soon as the anesthesia had worn off. In 33 cases there was no vomiting.

Opiates.—Eighteen cases received deodorized tincture of opium by rectum in from fifteen to twenty drop doses. The total amount received by these 18 cases was slightly over five and a half drachms; 13 cases received hypodermatic injections of morphine in doses of one-eighth to one-quarter of a grain, the total amount given to all cases being three and a half grains.

Suppuration.—Suppuration of the abdominal wound occurred in 8 cases (7.2 per cent). In 4 it was slight and was confined entirely to the skin. In the discharge from 2 of these cases the staphylococcus pyogenes aureus was demonstrated. In 4 cases there was a considerable amount of purulent discharge from the lower angle of the wound, in 2 of which, however, the deeper tissues were not involved. In these cases the staphylococcus pyogenes aureus was found in the pus.

Drainage was carried out in only *one* instance. In this case we drained through the vagina and also placed one piece of gauze in the lower angle of the incision in the abdomen. The large pus sac that was present, and which it was impossible to remove, communicated with the peritoneal cavity and the vagina at the same time. In attempting to open the sac

through the vagina an opening was also made into the peritoneal cavity. Thus, as it was evident that the sac would drain its contents into the peritoneal cavity, it was evacuated by the vaginal puncture.

The patients, with three exceptions, sat up in bed on the eighteenth day and were out of bed on the twenty-first day. In the three exceptions the patients sat up in bed on the eleventh (out of bed on the fourteenth day), the twenty-sixth, and twenty-seventh days respectively. Greatest number of days in a given case in hospital, 88. Fewest number of days in a given case in hospital, 14. The average number of days in the hospital was 32. Convalescence was interrupted in 3 cases by a slight attack of bronchitis.

Pus was found at the time of operation macroscopically in 14 cases, microscopically in 29 cases.

In all of the pus cases cover-slips were made and culture tubes were inoculated, but only in 4 instances did we obtain bacteria; in 3 of these the organism strongly resembled the gonococcus, and in 1 case a staphylococcus was found by cover-slip examination only. Nothing grew on the tubes. It is to be remarked that in the inflammatory condition of the tubes and ovaries large numbers of eosinophiles had infiltrated into the tissues.

In making up our pathologic protocols we are in the habit of following, as a routine, special forms which we have had printed for the purpose. Our forms are printed so that the following points can be dealt with in every case:

GYNECOLOGICAL SERVICE.

Name.....
Date of operation.....

UTERINE AND CERVICAL CURETTINGS.

(1) Superficial epithelium, (2) utricular glands, (3) glandular epithelium, (4) stroma, (5) vessels, (6) muscle, (7) cervix.

Diagnosis.....
Examined by Dr.
Remarks

PROTOCOLS FOR TUBES AND OVARIES.

Pathological Report.

Hospital No..... Service No.....
Autopsy No..... Laboratory Record No.....
Name.....
Date

OVARY.

(a) *Gross Appearances and Measurements*.—(1) Shape (2) size, (3) weight, (4) dimensions, (5) color, (6) consistence (7) appearances on section, (8) gross appearances of corpora lutea, hemorrhagica, and albicantia, (9) cortex in gross, (10) medulla in gross, (11) gross pathological alterations, such as cysts, hemorrhages, infiltrations, etc.

(b) *Microscopical Appearances*.—(1) Peritoneum and germinal epithelium, (2) cortical substance, (3) medullary substance (zona vasculosa), (4) tunica albuginea, (5) young Graafian follicles, (6) old Graafian follicles, (7) blood vessels, (8) lymph vessels, (9) nerve cells and nerve fibres, (10) hilum of the ovary, including remains of Wolffian body, (11) pathologic alterations, such as degenerations, hypertrophies, hyperplasias, cyst formations, neoplasms, hemorrhages, inflammations, infections, anomalous development, etc., etc.

FALLOPIAN TUBES.

Macroscopic Appearances.—(1) Size by actual measurement, (2) general appearance, (3) patency, (4) contents, (5) gross pathological lesions—adhesions, hemorrhages, tubal pregnancy, inflammations, suppurations, cyst formations, etc.

Microscopic Appearances.—(a) Mucosa, (1) longitudinal folds, main and accessory, (2) ciliated epithelium, (3) strata propria in isthmus, ampulla, and infundibulum, (4) submucosa; (b) muscular coat, (1) inner circular, (2) outer longitudinal; (c) peritoneal covering, (1) cells, (2) subperitoneal infiltrations, etc.; (d) pathological findings in microscopic sections other than those included in above description.

Finally, I wish to express my thanks to my assistant, Dr. William H. Weir, for valuable assistance in the preparation of the pathologic protocols, and also to my colleague, Prof. William T. Howard, for his kind supervision of this work.

A NEW SPECULUM.

 BY

H. F. GAU, M.D.,
Cincinnati, O.

(With two illustrations)

THE use of a Sims speculum for therapeutic purposes requires the assistance of a third person; but only a few of those who want to use the Sims speculum have sufficient gynecological practice to compensate the keeping of a nurse. Most of

the self-retaining modified Sims specula are cumbersome, expensive, difficult of application, and require a great deal of time to keep aseptic; whereas the plurivalve specula can only be used with advantage with the patient in the dorsal position, with a limited field of vision, and for therapeutic application.

I had the pleasure of presenting to the Cincinnati Obstetrical Society my self-retaining modification of a double Sims

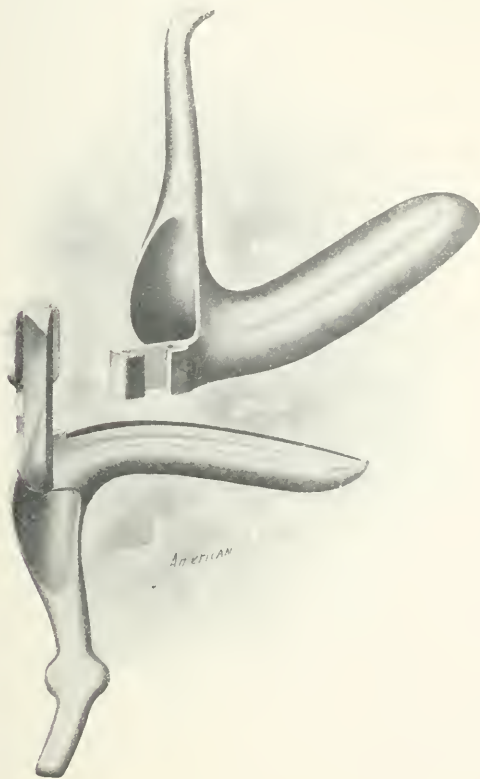


FIG. 1.

speculum, which combines both the advantages of the duck-bill and plurivalve specula, is easy of application in both the dorsal and lateral positions, readily sterilized as it contains no screws or complicated mechanism, and is useful for both diagnostic and therapeutic purposes.

The speculum consists of a lower and upper Sims blade with suitable curved handles, and a simple locking appliance attached at a certain angle to one lateral free border of each blade.

To apply the speculum, the lower blade, with the tip well oiled, is grasped in the left hand and inserted in the usual manner, at the same time pulling the perineum downward and backward; the upper blade, with the tip also lubricated, is now held in the right hand and glides past the lower blade until the hollow extension of the upper blade slips into the perpendicular extension of the lower blade; slight upward and downward

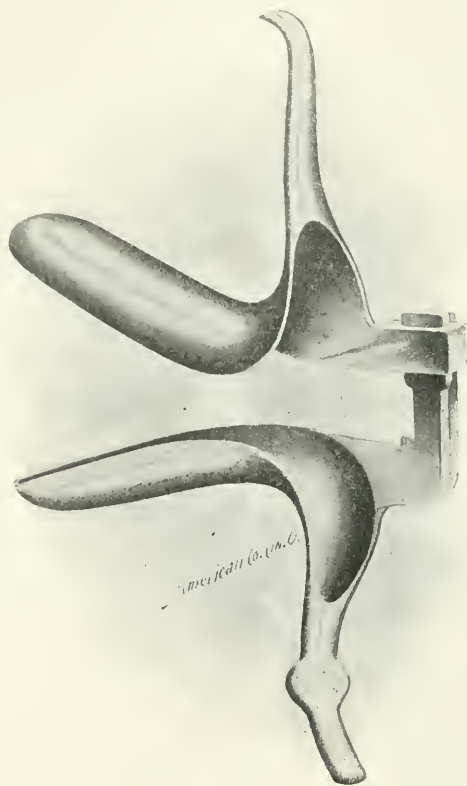


FIG. 2.

traction on both handles now locks the speculum, and you have a double Sims self-retaining speculum with the cervix and vault of the vagina thoroughly exposed to view.

To remove the speculum the lower handle is held firm, while the upper handle is tilted toward the operator with a downward motion, which unlocks the speculum. The parts are prevented from being pinched by a slight extension on the lower part of the lock.

TRANSACTIONS OF THE SECTION ON
GYNECOLOGY OF THE COLLEGE OF
PHYSICIANS OF PHILADELPHIA.

Stated Meeting, March 15, 1900.

The Chairman, JOHN B. SHOBER, M.D., presiding.

DR. B. C. HIRST read a paper on

SOME RECENT EXPERIENCES IN INTESTINAL SURGERY.¹

DR. G. G. DAVIS.—I might add a couple of cases of imperforate anus. In each case I made an earnest attempt to reach the gut through the perineum and failed in both. That is, I dissected up in the hollow of the sacrum as far as I felt justified, and in each of them I opened in the loin. One lived three or four days and then died. The other one at the time of operation had a supernumerary finger hanging by a mere shred of tissue. This I ligated and removed the finger. I heard afterward that the child bled to death. That the ligature came loose I am unwilling to believe, because it was tied strongly with good silk ligature. I think that the parents did not care much for the child after finding that it had an imperforate anus and after the child had been passing the feces through the abdominal wound. I understand that they were very well pleased when the child died, and cannot help but suspect that there must have been some contributory negligence on their part.

I believe with Dr. Hirst that an earnest attempt should be made through the perineum to reach the bowel, and if it presents the way in which he says the last one did, as a rounded bulging tumor, I have no doubt that opening into that would be more satisfactory than an opening in the loin.

In making the opening in the first case, although it was quite small, there was prolapse of the mucous membrane to quite a considerable extent, so that I would suggest that the puncture of the bowel be made exceedingly small, say two millimetres, in the new-born infant.

Another question is whether we should wait until the bowel is distended or operate immediately. It has been thought by some that distension of the bowel will render more easy the operation.

DR. G. G. DAVIS read a paper entitled

MULTILOCULAR CYSTIC GROWTH OF OVARY, ACCOMPANIED BY
INCREASED GROWTH OF HAIR AND CHANGE OF VOICE,
WITH RECURRENCE IN THE ABDOMINAL INCISION.²

DR. B. C. HIRST.—I have nothing to say in connection with

¹ See original article, p. 616.

² See original article, p. 620.

this specimen shown by Dr. Davis, except that I have seen one case, when working with the late Dr. Goodell, in which there was the same growth of hair. Whether the growth of hair disappeared on the removal of the ovarian tumor, which was not malignant, I cannot say.

As to secondary growth of these papilliferous tumors, I imagine it must come from implantation. If I remember rightly, these tumors and carcinomas which develop from syncytial cells are more easily implanted than any other growths.

DR. M. O'HARA, JR.—I have had no direct personal experience with a case such as reported, although I observed three cases in the work of another operator for a period of six weeks. In two of these cases, owing to its extensive character, the growth was not completely removed; drainage was used in both cases and they made remarkably good recoveries. After leaving the hospital they became quite vigorous and strong, and remained so for eighteen months, after which I lost sight of them.

DR. DAVIS (closes).—I thought that some of the members might have had similar cases, or cases in which after abdominal operation the growth reappeared in the site of the incision, or that they might possibly have had cases such as the one Dr. Hirst has alluded to, of growth of the hair and the assumption of masculine characteristics in the diseases of these organs.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY.

Meeting of March 27, 1900.

BACHE MCE. EMMET, M.D. (*pro tem.*), *in the Chair.*

DR. LEROY BROWN read notes on

CASES OF APPENDICITIS ASSOCIATED WITH RIGHT TUBAL DISEASE.

DR. GEORGE T. HARRISON.—In regard to the operations for removal of the appendix, where there is any belief on the part of the surgeon that the appendages on the right side are diseased, and there is complication, such as inflammation of the appendix, certainly the abdominal route must be selected; although I am informed by a friend of mine that a distinguished man of our fraternity, whom you all know, when called in consultation on one occasion, operated by the vaginal route to attack diseased appendages on the right side, and also diagnosticated an inflamed appendix. It was a case of inflammation of the right appendage terminating in formation of pus, complicated by an inflamed appendix. This man opened the

pus cavity and then, after using a little legerdemain, informed the doctor that he had taken out the appendix. No one saw it done; his word had to be taken for it. The man who did that is unique: nobody else could do it so well. Necessarily, if one expects to meet such complications as that, he must go by the abdominal route.

A very interesting case of that sort regarding diagnosis confirmed by operation was one that Dr. Alfred Tucker had, which I saw in consultation. In these cases correct diagnosis is almost impossible. The existence of the inflamed appendix can only be determined from the clinical history. In this instance, when I was called in we were able to demonstrate an inflammation in the neighborhood of the appendix. We did not call it appendicitis—the old name, perityphlitis, was better. It has been established with absolute certainty that some of these cases of inflammation do not take their point of departure from the appendix; therefore the name is too limited.

In this instance we did discover the existence of appendicitis. A short time afterward the patient seemed to recover from that, and her progress toward convalescence was very rapid. Soon, however, she had violent pelvic pains with high temperature. Examination showed inflammation of the appendages on the right and left sides. When the doctor came to operate I advised him not to operate at that time. I am ready to enter the field against the surgeons of the world that the time to operate is in the free interval; as a rule we ought not to operate. If one intends to remove the appendix at all, it should be done within the first twenty-four hours. That golden opportunity gone, wait until the patient recovers from the attack. Acting on that principle, operation was postponed until the patient was in good condition after another attack, when she was relieved of the appendages on the right side, also the appendix.

I am not prepared to admit the correctness of Dr. Broun's statement that most surgeons are now giving up the vaginal route in favor of the abdominal in the class of cases cited. In many cases vaginal operation should not be attempted. One is when adhesions are suspected. Unless one has a wonderful amount of experience in that way, he will find it too difficult and would better go through the abdomen, where he can have the benefit of sight.

DR. A. PALMER DUDLEY.—Dr. Broun's paper brings up four points for discussion:

1. *Selection of Route*.—Does this alter the effect, increasing or decreasing the tendency toward disease? In my judgment Dr. Broun is correct. I differ from Dr. Harrison. Two years ago men were embracing every opportunity to work per vaginam, but after watching the effect for two or three years they have abandoned the route, as it makes double work. The tendency of New York men is to select the abdominal route in preference, especially where the inflammatory condition is well marked on the right side.

Since we have been able to close an incision with subcutaneous sutures, leaving little if any scar, the dread of abdominal section is disappearing in women. There is less pain by this method. I am in favor of the vaginal operation only where a perfect diagnosis can be made and the parts are especially suitable for manipulation. The vagina should be capacious and roomy—one that can be worked through without danger of rupturing the structure or injuring the ureters. I am entirely abandoning the vaginal route except for drainage purposes. In acute pelvic sepsis after abortion, and in suprapubic sepsis following childbirth, I drain through the vagina.

Suppose you invade a pelvis from the vagina, how can you perform the operation without dragging the cecum into the vagina to handle it? If you follow Goffe's method, splitting the vaginal wall and inverting the uterus, you have an open pelvis to work in. Pryor puts patients into the air and spreads the pelvis open until a fist could be put into it and the operation for appendicitis may be done with retractors. I believe any man who does that is following a fad. I think he is not studying the best interest of his patient. I believe time will prove in a large majority of cases that the abdominal route is the best for all forms of pelvic surgery, and that the median incision is better than the lateral if you have to work upon the appendix. I have removed the appendix from the left side through a right inguinal incision; it was not easy, but I did it to save making two scars.

2. *With Regard to the Appendix.*—We have in the city men who can palpate the appendix and tell whether or not it contains a seed. They do not find the seed, but in manipulating to get it they squeeze it out. Think of the anatomical relations in the pelvis of man or woman. The appendix is down behind and beneath the cecum. The latter is usually filled with gas or fecal contents, and to palpate the appendix, unless it is distended with pus and lifted up by it out of the pelvis as by a purulent salpinx, is impossible. It can only be done by bimanual rectal touch. This method is effective with men and with a woman if she be thin and spare. The appendix is much more frequently involved in inflammatory conditions of the right appendages than we think. In five or six cases this fall I have found a diseased appendix when I did not anticipate it. I surmounted the difficulty by taking it off.

3. *Drainage.*—This question is very important, considered in connection with this subject. I saved the life of a girl of 15 at the Harlem Hospital. It was the worst attack of appendicitis I have ever handled. Appendix sloughed off into the pelvis, full of pus. I made thorough drainage through the vagina without hurting her—she was a virgin—and she recovered.

I have done over a hundred successful operations for appendicitis, never having lost a case, and I am sure that this result is due to thorough drainage. Whenever there is pus I cut until I reach it. I relieve the pus, put in irrigation, and wash. Cases have recovered in my hands where the appendix has sloughed and come out with the washing.

4. *Diagnosis*.—No man can tell through the vagina whether there are intestinal adhesions high up. A little pelvic adhesion is suspected, the abdomen is opened, and the small intestines are found to be matted above the fundus of the uterus. For that reason I would almost invariably select the abdominal route for this operation, making median incision.

DR. CLARENCE R. HYDE.—I believe it to be very difficult for any operator, no matter who or what his skill, to diagnose the presence or absence of appendicitis when there is also right tubal involvement. I was recently asked to assist at an operation on a case which illustrates this point very well, and which had previously been diagnosed as appendicitis by an excellent surgeon of repute. On examination under ether a large mass was found filling the cul-de-sac and more to the right. We therefore concluded that the trouble was mainly tubal, although the patient had given marked symptoms of appendicitis prior to the operation. Because of the possible involvement of the appendix we chose the abdominal route, and on opening the peritoneal cavity came directly upon a large pus tube. Examination of the appendix showed it to be perfectly normal. However, it was removed. In enucleating the tube it was ruptured, but was successfully ablated, and the cul-de-sac was drained with gauze per vaginam. This of necessity brings up the question which operation to elect in acute suppurative salpingitis—drainage by posterior section, or removal of the entire tube by the abdominal route, risking soiling of the peritoneal cavity from a possible rupture. In this case the left tube was normal at the time of the first operation, but later became infected and developed into a large pus tube, which we opened to-day and drained by posterior section. The soiling of the peritoneum at the first operation was undoubtedly responsible for this later infection.

Posterior section in such cases gives the patient better chances for recovery. Later, if necessary, the tube can be removed at a secondary operation. The abdominal route was selected in this case because of the supposed involvement of the appendix.

The more I see of this class of cases, and the more I note the work of others, the more I am led to believe that it is no easy task to prove the coexistence of appendicitis and right tubal disease. . Only section of the abdomen can settle this.

DR. GEORGE T. HARRISON.—For the sake of historical accuracy I want to correct Dr. Dudley. Dr. Goffe was not the man who first suggested that method of opening. It was Dührssen. I learned from him before Dr. Goffe ever heard of it.

DR. J. DOUGAL BISSELL.—I believe it to be the duty of the surgeon to examine the appendix every time the abdomen is opened. He should examine it just as he would the left tube if the right were diseased. The appendix is often overlooked, and the more experience we have in surgery the more we see the necessity of this examination. I have in mind a patient now in my care from whom I removed a large dermoid cyst. I attributed all her trouble, pain, etc., to this cyst on the left

side. I removed it per vaginam and expected no further trouble. The patient was relieved of a certain amount of pain, but she has as much on the right side to-day as ever. I am inclined to think something is wrong with her appendix. Had I operated through the abdomen instead of the vagina I should have discovered the difficulty. A second operation will have to be made to find out whether there is a disease of the appendix. I have lately come in contact with a large number of these cases, and am convinced that we will in future do the abdominal instead of the vaginal operation. Like many others, I have thought I had a simple mass on the right side to deal with, after finding that the appendix was matted down in it. I have had two such cases within the past six months. Again, I have been deceived in thinking I had a diseased appendix to treat when there was a pyosalpinx on the right side. I have taken out the appendix where a diagnosis has been made of tubal trouble. I believe with Dr. Broun that the pendulum is swinging toward abdominal operation.

DR. BACHE MCE. EMMET.—My idea is that the general tendency is to work by the upper route; but I consider it best not to be held by any plan, but to operate as each case requires. I believe it advisable to work from below in cases where the mass to be extirpated lies close against the vaginal wall, and especially adherent pus sacs, which may simply be evacuated and drained if necessary.

For the removal of the appendix we certainly always should work from above. We thus avoid all complications, for we often come upon most unexpected conditions. Adhesions of intestines are frequently found which would entail a rupture of the walls should we follow the lower route, while working from above, close against the intestine, our tearing is fully in sight. As a general thing we have a greater field from above. In the same way, if we wish to leave a part of a tube or a portion of an ovary, it can be more satisfactorily accomplished. We can make all of these conservative operations from above, while it would be almost impossible from below.

I have lately removed the appendix in three cases at the Woman's Hospital when trouble was not suspected there. In one case the tubes and ovaries were thoroughly gummed down to the brim of the pelvis. I detached them, found them perfectly healthy otherwise, left them in good position, and then took off the appendix, which was found pendulous in the true pelvis. I cannot say how much diseased it was, but within it was found a small mass and a much-thickened mucous lining. I felt it was safer to have it out. I believe it had given infection wherever it had reached. The patient recovered and is free from all former symptoms. In another case, in removing one cystic ovary I found numerous adhesions about the appendages, otherwise free from disease, but the appendix was also adherent to them, so I removed it. Recovery from all bad symptoms. In a third case I also took off the appendix when I had not expected to do so. It was extremely involved in an exudate mass.

As Dr. Bissell has said, it is our duty to examine the appendix very thoroughly, but I believe we cannot always determine whether it is involved or not.

As to being aware of the condition prior to operation, I think the history may tell us something, but many patients are ignorant and unobserving. Nor do I trust very much to the appendix being in any one particular position. It often lies behind the cecum, but not always, as it is very apt to move, and I find it not infrequently hanging over the brim of the pelvis. It also may be drawn aside by adhesions of the omentum. In a case I saw recently, omentum, appendix, intestine, bladder, and top of uterus were all gummed in one mass, with the appendix dragged over anteriorly to the top of the bladder. I believe it is possible to find it in almost every position.

As I said before, history tells us something, and if we make careful analysis we may find that the patients have periodic attacks of pain independent of menstruation, and that the habit of constipation exists. They are constantly purging themselves to get relief. To me, palpation of a normal appendix is not positive, nor is the palpation of a diseased one entirely satisfactory in fat women. I would make out the possibility of its being involved largely by the history, aided, however, by palpation, but to be established by operation.

DR. LEROY BROWN.—I merely quoted statistics to show the trend of opinion of different surgeons throughout the city.

DR. GEORGE T. HARRISON.—I think it is not the trend of opinion with eminent German surgeons. Many of the ablest men are operating more and more per vaginam. Among them are Dürrssen, Leopold, Schauta, and others I could mention.

DR. LEROY BROWN.—When we started out we did vaginal work. For the last four years we have been doing much work by the abdominal route. Then we did vaginal work to a considerable extent, and now, without being able to say why, we find that many operators are driving off in the other direction. Dr. Emmet, a moment ago, said that he treated cases as each one indicated or suggested itself at the time. If there appeared to be an indication that vaginal work would be required, he did that; if abdominal, he followed that route. Men who were enthusiastic about vaginal work two years ago have now changed to a considerable extent. They feel that it is more advantageous to the patient to operate by the abdominal route.

DR. GEORGE T. HARRISON.—In cases on the right side there is no manner of doubt. Heretofore it has been the custom of certain men to operate per vaginam in cases of ectopic gestation and hematocele. It is a mistake; the abdominal route is the proper one there.

DR. LEROY BROWN.—Ectopic gestation has never been treated per vaginam at the Woman's except once. The surgeon said he would never do it again, although the patient recovered. If I am correctly informed, ordinary operators prefer the abdominal route. In the case I reported I did the appendicitis operation through the abdomen; I could not have gone through the vagina with any justice to the patient.

DR. BACHE McE. EMMET.—The mode of incision varies according to the condition. It is not necessarily always by median line. When we have knowledge of disease of the right appendage and suspect disease of the appendix, I would incise along the outer side of the right rectus, to be nearer the tube and the appendix at the same time. In cases where there is no bound-down appendix, we can work satisfactorily through the median line incision, dragging the appendix toward it.

In regard to Dr. Hyde's remarks: He regretted not having worked per vaginam for the removal of a pus tube, because he found the other tube infected at a later date, and suggested that the infection arose in the abdominal cavity from the tube which had been operated upon. I fancy it must have been progressive to that tube from the uterine cavity, as to the first. Infection could scarcely have travelled from one tube to the other in the peritoneal cavity without involving every other part and causing septic peritonitis.

DR. CLARENCE R. HYDE.—Two days after the operation the patient discharged pus through the posterior incision where we had drained. It was thought infection came from this pus in the cul-de-sac and travelled to the fimbriæ of the tube rather than through the uterus. However, Dr. Emmet's criticism is very possible.

DR. TAFT (of Hartford, Conn.).—In every case where you are in doubt between appendicitis and inflammation on the other side, you would adopt a lateral incision?

DR. EMMET.—Not if I thought both sides involved. Only in case the right appendages are involved and appendicitis suspected, as most of my work is done without seeing, and I could reach very well to both points from there. For ordinary work, however, I would still hold to the median line.

DR. EMMET presented a specimen showing

TUMOR OF THE INTESTINE.

My specimen is not of a gynecological character; it is of interest as a specimen of tumor of the intestine. It was removed from a woman 52 years of age, quite emaciated. She had suffered for some months past with pain on the right side of the abdominal cavity toward the cecum. She suffered a great deal from obstruction and gradually ate less and less. The pain continued severe, and to that extent that at the last she refrained from eating for a whole week. Her condition for operation was poor. I felt a tumor at the ileo-cecal region and believed it to be malignant. I cut down upon it, and so it proved to be. We found a mass of agglutinated intestine, a portion of which was so fast that we could not determine with which part of the colon we had to deal.

Through the incision, four inches in length, I brought this mass to the surface. It had a great deal of exudate about it; however, after some difficulty it was isolated, and after placing my constricting pins beyond into healthy tissue I excised this piece of gut, four inches in length. I broke into the mass

while separating adhesions. The part broken into is evidently papillomatous, but the tumor has not yet been examined. Having ligated a number of bleeding parts down in the mesentery, I began to make union of the ends of the intestine. I made here a Maunsell anastomosis. I had to work on the ascending colon from the head, which was free. This operation was performed on Friday last. The patient is making a good recovery, pulse and temperature below 100 to-day, four days complete.

The Maunsell operation is comparatively new. Maunsell was a surgeon in New Zealand who afterward moved to London. Unfortunately he had very little opportunity to witness the success of his operation. He did it once, the patient dying of exhaustion in six days after the operation, though the union of the gut was in every way satisfactory. I do not know how many operations have been performed of late years. Up to December, 1895, there had been 9—7 successful, 2 deaths.

It is always an end-to-end operation. Catch the two ends by a stitch in the lower part of each gut against the mesentery, including the mesentery, and do the same at the top, leaving the stitch long after tying it. On the proximal or distal side make a slit or buttonhole one and a half or two inches from the excised end. Pass a forceps through the buttonhole and catch the two threads, one binding the top section, the other the lower. Then drag upon them. The two ends of the gut are face to face and are dragged through the buttonhole, inverting one, the other following. You now have two serous surfaces edge to edge. Make union at that point a quarter of an inch below the border, putting in eighteen or twenty through-and-through sutures, dividing in the middle, tying them and cutting as you go. When this union is made, work down and draw the gut into its old place, stitch the buttonhole, wash off the gut, close the abdomen, and the patient should recover.

DR. BISSELL.—One turns in, the other does not.

DR. EMMET.—Exactly so. The end toward the buttonhole is inverted, the other follows; the two serous surfaces in contact. It is best to leave but one series of stitches, to avoid cutting off the circulation and the establishment of necrosis.

Maunsell advises horse-hair. Silk has been used. I used chromicized catgut. Sometimes there is intussusception and adhesions are established, where you can separate without tearing the gut and do this operation. It is a very serviceable method and applies to all cases of intussusception. It has been done with the ileum and large intestine and different parts of the colon itself.

My patient has passed a small amount of fecal matter, though no laxative has been given her as yet. She has no distension and is perfectly comfortable.

DR. DUDLEY.—It will be interesting to watch the progress of that woman, to see whether the growth does not return in some other organ. I remember resecting a contracted descending colon four or five years ago for a similar condition,

although the growth may not have been of the same character. I made an end-to-end anastomosis, using fine silk. Two hours after the work was finished the patient had eight movements of the bowels. She had been given a dose of croton oil. She recovered. In about two months' time she developed cancer of the liver and died. Postmortem examination showed that the liver weighed nearly eight pounds and extended to the crest of the ilium. Its growth was very rapid. There was perfect union of the gut. Fifteen inches had been excised.

DR. EMMET.—No contraction?

DR. DUDLEY.—No, the calibre of the descending colon was good. I tried to do the operation again on a splenic flexion of the colon, with adhesions involving the stomach. I abandoned it and the patient died. I have made end-to-end anastomosis three times at Harlem Hospital for perforation of the gut, but have not as yet done the Maunsell operation. It is better.

DR. EMMET.—I think it will present itself to many as better than the ordinary end-to-end anastomosis. I think that is almost sure to give some constriction, and the Murphy button is also apt to give constriction.

DR. DUDLEY.—I should make three rows of sutures with fine silk, starting with the omentum, taking the mucous membrane first, then the muscular structure, making the Lembert suture for the peritoneal coat. In that way it is made airtight. It is a long operation.

DR. EMMET.—I used the clamping pin introduced by MacLaren, of Litchfield, Conn., also McLaughlin's clamp. The latter, I think, is rather biting.

DR. BROWN.—Can you recall where the description of this operation you mention may be found?

DR. EMMET.—The history of it was worked up and reported in the *Medical Journal* of December, 1895, by Wiggin, of the Charity Hospital.

DR. DUDLEY reported a rare case of

ABDOMINAL DROPSY.

He said: I can report an interesting case, but cannot show specimen, as the patient is still alive. She is a spare, pale, frail girl of 19. Up to three months ago she was perfectly well. While sweeping the floor one afternoon she was taken with a severe pain in the right groin. The pain was sharp and severe. Her mother put a mustard blister on her and put her in bed. For the two days following she was nauseated and vomited. From that time she gradually increased in size, without pain; there was only a feeling of discomfort. After a time a physician was called, who made a diagnosis of abdominal dropsy and aspirated two quarts and a half of blood-colored fluid from the abdomen. He found a growth to the right of the navel, which he considered to be the spleen. She ran a rapid heart and began to develop goitre at the same time. It was thought that she could not live, and

she was brought to New York to see if anything could be done. I examined her thoroughly, noted the rise and fall of temperature and pulse for two weeks. There was gradual return of the dropsy. There was but little enlargement of the abdomen, except in the region of the spleen. I put her on a saturated solution of the iodide of potassium. Temperature and pulse came down. Gradually she distended, and I called Dr. Janeway in consultation. Dr. Brooks, of the Post-Graduate, made the blood test, finding little increase of the white cells or diminution of the red corpuscles over what could be readily accounted for by the contents of the abdomen.

Dr. Janeway examined the patient very carefully, and in his presence I aspirated her abdomen and drew away seventy-three ounces of bloody serum. He was inclined to think the growth was of a malignant character. Apparently the pancreas occupied more space in that region than in the region of the spleen. I sent the fluid to the laboratory, and Dr. Brooks could find nothing to indicate that the growth involved a glandular organ. He found large quantities of sarcomatous or new-growth cells. A few days after the consultation I opened the abdomen, making an incision over the growth. I found what I considered the spleen. It was as large as the liver. The lower edge of it rested upon the right crest of the ilium, to its right edge. It was two and a half inches to the right of the navel and quite down to the region of the appendix. I could not get my hand far enough into the abdomen to tell whether it was pancreas or spleen. It had more the shape of the spleen. The color was the same as either would have under the circumstances. I could feel the right lobe of the liver, but not the left on account of adhesions. Anesthetic could not be given on account of the goitre. In washing out, a good deal of free coagulated fibrin escaped. I aspirated the growth with a large two-ounce hypodermatic syringe and drew away some of the fluid contents. Dr. Brooks was unable to say whether this fluid came from pancreas or spleen.

At the same time the peritoneum of the anterior abdominal wall became white like tripe and of about the same consistence. It was about a quarter of an inch thick. There was no new growth upon the peritoneum that would indicate papilloma, so I sewed up the wound, and it healed without rise of temperature.

The operation was done eight days ago and the patient is now sitting up about the room; temperature 99° and a fraction, pulse 108. It seemed to me a rare condition in a girl of 19. She was developed properly; local conditions were all right. The left ovary was slightly cystic, that was all. She will go home. I think it unwise to aspirate her again, for fear of puncturing the growth, causing it to descend into the pelvis, when death would follow.

Official Transactions.

CLARENCE R. HYDE,
Secretary.

TRANSACTIONS OF THE OBSTETRICAL
SOCIETY OF LONDON.

Meeting of Wednesday, April 4, 1900.

The President, ALBAN DORAN, F.R.C.S., in the Chair.

INCARCERATED RETRODISPLACED GRAVID UTERUS.

DR. J. MUNRO KERR (Glasgow) read a paper on this subject. He pointed out that three varieties of backward displacement of the gravid uterus may be met with, viz., "retroflexion," "retroversion," and "partial or incomplete retroversion," and that each form is illustrated by one of the cases.

Case I.—An incarcerated, retroflexed, gravid uterus which, after several fruitless attempts at replacement, righted itself. This occurrence is pointed out to be not very uncommon.

Case II.—This case was reported in full by Prof. Murdoch Cameron in the *British Medical Journal*, October 31, 1896. It was one of incarceration of the retroverted gravid uterus, in which the uterus could not be replaced until Prof. Cameron opened the abdomen, then performed cystotomy and emptied the bladder of a large quantity of blood clot. He then stitched up the bladder and abdomen. The pregnancy continued to full time. The treatment adopted in this case is discussed.

Case III.—Partial retroversion (sacculation) of the gravid uterus caused by a myoma in anterior wall. Reduction of the displacement; continuance of pregnancy. The causes of this form of retrodisplacement are described.

Case IV.—Extrauterine pregnancy simulating and mistaken for a retroflexed gravid uterus. Some reported cases are referred to, and the differential diagnosis of the two conditions is discussed.

THE PRESIDENT had seen a case of retroverted gravid uterus where the cervix was to the right and the elastic fundus to the left, exactly simulating extrauterine pregnancy, but a few days' delay cleared up the diagnosis. When examining such a doubtful case under anesthesia, care should be taken lest a gravid tube be palpated roughly. He referred to Unterberger's case, where a gravid uterus, displaced by a fall in the first month, caused distension of the bladder which forced open the urachus and allowed the urine to flow from the umbilicus. Rupture of an ovarian cyst through the umbilicus was diagnosed, but Unterberger emptied the suspected cyst by passing a catheter through the umbilical opening and another through the urethra. The uterus, retroverted and retroflexed, sacculated and partially incarcerated, righted itself, and delivery occurred at the fifth month.

DR. ARTHUR GILES had reported to the Society two cases where extrauterine gestation had been mistaken for retroversion of the gravid uterus, and he now narrated a case which he had seen with Dr. Martin, of Clapham, where a retroverted uterus simulated ectopic gestation. The mass in Douglas' pouch was reduced under anesthesia, and was then found to be distinctly bilobed, the left lobe feeling like a gravid tube. In a fortnight's time, however, the uterus had recovered its normal shape, and abortion ensued two months later.

DR. LEWERS criticised the treatment of the author's second case. He did not consider abdominal section should be recognized as a method of treatment. He had seen many cases at the London Hospital where the retention of urine had been extreme, over five pints of urine having been drawn off, and in at least two of these there was hematuria, but in none had abdominal section been suggested. His treatment was, after emptying the bladder, to replace the uterus, preferably under anesthesia, or to encourage the uterus to rise spontaneously by rest in bed, and regular evacuation of the bladder. Such spontaneous reposition was not unusual. In Prof. Cameron's case (Case 2), he suggested that the urethra might have been dilated and the clots removed by forceps and irrigation; and if the bladder had been kept empty for a few days and the patient kept in bed, he believed the uterus would have been spontaneously replaced.

DR. BOXALL emphasized the advantage of rest, and especially of anesthesia, in reducing the impacted uterus. As an instance of spontaneous reduction occurring after rest in bed, he narrated a case of retroverted gravid uterus, with a fibroid in the posterior uterine wall which had been mistaken for an extrauterine pregnancy. He failed to reduce the uterus by gentle manipulation, but a few days in bed, followed by an anesthetic, allowed the uterus to spontaneously regain its position. This at once revealed the true nature of the case.

DR. CHARLES MORRIS referred to a case he had seen in the late Dr. Matthews Duncan's wards in which there was extreme retention of urine with hematuria. A complete cast of the bladder was subsequently passed per urethram, and complete recovery ensued. He thought few cases would call for abdominal section, the possible exception being where the uterus was bound down by firm adhesions; but in such cases abortion would probably take place at an earlier period than an operation would be contemplated.

DR. HUBERT ROBERTS asked if Case 4, where an extrauterine gestation had been diagnosed as a retroverted gravid uterus, was one of intraperitoneal hematocele following a rupture. He thought the best way to differentiate between these two conditions was, as Dr. Cullingworth had insisted, to examine bimanually under anesthesia, when, in the case of hematocele, the body of the uterus would be felt to be lying above the pubes in front of the swelling. Dr. Roberts did not believe that abdominal section could ever be necessary to effect

reduction of a retroverted gravid uterus, and could find no evidence that such a course had ever been adopted at St. Bartholomew's Hospital.

DR. AMAND ROUTH had seen a case of impacted retroverted gravid uterus diagnosed as hematocele, but an examination under anesthesia would always clear up the diagnosis. Every case he had seen had been capable of reposition without abdominal section. He had now in his ward at Charing Cross Hospital a case where retention of urine with this condition had persisted, with overflow, for the fourteen days before admission, and where one hundred and fifty-four ounces of urine had been drawn off. It had taken three weeks for the bladder to nearly recover its muscular tone, and even now there was about an ounce of residual urine, and pus was still present in the deposit.

MR. BUTLER SMYTHIE asked how long efforts at reduction had been persisted in previous to the operation in Case 2. He thought abdominal section in such cases was uncalled for, as it increased the risk to the patient.

DR. HERBERT SPENCER had not yet seen a case of retroversion of the gravid uterus in which it had not been possible to replace the organ. Sometimes the replacement had not been effected at the first attempt, and sometimes the organ had righted itself after ineffectual attempts at replacement had been made. In some cases the replacement had at first not been complete (possibly owing to slight adhesions), but by rest and keeping the bladder empty the uterus had been enabled to return to its normal position. He considered that the only cases requiring abdominal section were those in which the retroverted organ was fixed by strong adhesions.

In reply. DR. MUNRO KERR admitted that cases requiring abdominal section were very rare, but there was absolutely no doubt that in some cases the uterus could not be replaced by the ordinary measures. As evidence of this he quoted Dr. W. Hunter's classical case, where at the postmortem examination the fundus could only be raised after the symphysis had been divided. Olshausen and others in such irreducible cases had advised extirpation of the organ, and Jacobs, after opening the abdomen, had only succeeded in raising the uterus after separating the dense adhesions which fixed it to the pouch of Douglas. He thought in these difficult cases abdominal section was preferable to either extirpation or incision of the uterus.

Specimens.—The following specimens were shown: DR. CULLINGWORTH: Incarcerated fibromyoma in an unusually young subject. DR. A. F. STABB: Myxomyoma (sarcoma ?) of uterus. THE PRESIDENT: Tubal mole with three-quarter inch fetus, in perfect preservation. DR. W. DUNCAN: Tubo-ovarian mole. DR. ADDINSELL: Fibroma of the ovary. DR. MACNAUGHTON JONES: Ovarian cystoma complicating pregnancy. DR. ARNOLD LEA: Sarcoma vaginæ in a child aged 3 years, with microscopical section.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Treatment of Tumors complicating Pregnancy.—In a paper on this subject Brooks H. Wells⁸ says: In the early stages of CANCER, impregnation frequently occurs and two-thirds of the cases go on toward term. The cancer, under the stimulus of the increased circulation and succulence of the tissues incident to the pregnancy, grows and spreads with extreme luxuriance, and the cachexia increases rapidly. Some of the women die before term from exhaustion or from a septic infection from the breaking-down cancer tissue—an infection which may be the result of bruising incident to even repeated digital examinations. If they abort there is increased risk from sepsis and hemorrhage. If labor at term occurs over 30 per cent succumb when delivery occurs spontaneously—many of these from rupture of the uterus—while about 50 per cent die where the aid of forceps or version or craniotomy has increased the traumatism and subsequent exhaustion, hemorrhage, sloughing, and sepsis. About 40 per cent of the children are born dead, and nearly all are of feeble vitality.

In the presence of cancer of the cervix it is usually impossible to be certain of pregnancy before the end of the third month. Here the child should be entirely ignored, for the operative indication is even more urgent than in the unimpregnated condition. While the uterus is yet small it and the upper vagina should be removed by vaginal hysterectomy or by Werder's operation.

When the conditions are favorable the vaginal operation is best. It should be begun by a circular incision of the vagina four to six centimetres below the cervix, the vaginal walls being dissected off so as to form a cuff about the cervix, and clamped together by forceps, as suggested by Goffe, so as to shut off the cervix and its infectious material. The operation is then finished in the usual manner.

When the disease is more advanced or the body of the uterus is larger Werder's method is advisable. Here the ovarian and uterine arteries are tied off through an abdominal incision and the uterus freed from bladder and broad ligament without cutting through the vaginal wall. The vagina is then freed from its attachments by blunt dissection as far down as is thought advisable, and the uterus drawn down and out through the vulva by stout traction forceps attached to the cervix. The peritoneum is then united over the fundus, the abdominal wound closed, and the operation completed by removing the uterus after dividing the inverted vagina at the point selected. If the uterus is too large to pass easily through the vagina

in this way, a supravaginal amputation should be made to lessen its bulk before the removal below of the cervix and vagina. This method is ideal in that it avoids any contamination of the peritoneal cavity or of any cut surface by septic or cancerous matter.

When the condition is discovered during the fourth or fifth month of pregnancy, immediate combined hysterectomy is still the procedure of choice. During the sixth month and later the viability of the child must be considered, and the question of waiting until this is assured comes up. When the child is viable induced labor and hysterectomy, or Cesarean section and removal of uterus and vagina, should be done.

When the case is first seen at term we may find cancer at so early a period that its diagnosis is uncertain. At this stage it does not prevent dilatation of the cervix, but predisposes to deep tears. Where the disease is more advanced, but still confined to one lip, it may be scraped and cut away, and dilatation aided by multiple incisions and rupture of the membranes, so that the pressure of the head may aid in controlling the bleeding, which, however, is not usually alarming. Where the cervix is extensively involved, or where the cancerous masses are large, Cesarean section and immediate removal of the uterus and vagina is indicated. In these instances craniotomy on a living child is not justifiable, as the mother is doomed in any case, and the crushing and tearing incident to forcible delivery will probably hasten her death more than the abdominal section.

Where cancer affects vulva, vagina, or rectum, remove the masses if small and deliver per vaginam, but if the disease is advanced the abdominal incision gives the best results.

FIBROMA —In the presence of uterine fibroids the chance of pregnancy is certainly lessened, and when pregnant the risk of abortion is increased. Abortion in these cases is particularly dangerous from hemorrhage and sepsis. It is certain that fibroids grow very rapidly when stimulated by the increased blood supply incident to pregnancy, that they show an increased liability to inflammation and to cystic degenerations, often become very soft and succulent, and that they also quite frequently shrink rapidly or disappear during the puerperal period. This sudden augmentation in size, especially when the growth occupies the upper part of the cervix, rapidly increases any pressure symptoms that may have been present before impregnation. Interstitial tumors, whether single or multiple, grow most rapidly, particularly in cases where the uterine wall is much thickened. Subperitoneal tumors, especially pedunculated, if near the fundus, do not grow so rapidly and are not so important in their effect on labor, unless where very large. With submucous tumors of the body of the uterus pregnancy very rarely occurs and practically always ends in abortion. In general the higher the situation of the tumor and the more it approaches the subperitoneal type, the less the danger; the most serious cases being those where the fibroid occupies the pelvic cavity.

The presence of a fibroid is a cause for inefficient or irregular uterine contractions, and, as the proper uterine retraction is interfered with, postpartum and puerperal hemorrhage becomes a serious danger. The condition predisposes to a vicious insertion of the placenta and to malpresentations of the fetus. Uterine rupture is not uncommon, being favored by the obstruction offered by the tumor and by the degenerative changes in the uterine wall caused by the presence of the fibroid. Inflammation and sloughing of the tumor from the pressure and bruising to which it is subjected during labor is very common and brings with it a most grave risk from sepsis.

Excluding subperitoneal tumors of the fundus, the maternal mortality in labor complicated by fibroids has been in the past over forty per cent and the mortality to the fetus nearly as much.

Treatment.—Before labor. With small subperitoneal tumors of the fundus and a pregnancy well advanced expectant treatment is allowable, but during the early months of gestation myomectomy is indicated and can often be done without interrupting the pregnancy. Where the tumor is at the lower uterine pole enucleation per vaginam is best, as a waiting plan exposes the patient to grave risks. With interstitial tumors of the body of the uterus supravaginal hysterectomy is better than either abortion or premature labor, and is easy because of the relaxation of the broad ligaments caused by the pregnancy.

During labor. With fundal tumors it is only necessary to be ready to secure contraction during the third stage. If postpartum hemorrhage occurs, explore the cavity of the uterus with the hand, as sometimes fibroids are found that can be easily enucleated, and then pack with gauze. Give ergot. Inversion occasionally follows delivery with tumors of the fundus and necessitates immediate enucleation and replacement or, if this be impossible, hysterectomy. If the fibroid obstructs labor and is in the anterior wall, it may sometimes be pushed out of the way with the patient in the knee-chest position, or it may be drawn above the brim by the uterine contractions. This cannot happen if the tumor is lateral or posterior. Tumors of the cervix must be enucleated when possible, as, even when very small, enucleation is less dangerous than forcible delivery. Fibroid polyp detected only after labor should still be removed, as it is apt to slough and cause sepsis.

If the fibroid obstructs labor and cannot be gotten out of the way, it is nearly always better to do a radical abdominal operation than to run the very grave risks of sloughing and sepsis which so often follow forcible delivery by forceps or version. To be successful these operations must be done early, as matters of election, and not late when the patient is exhausted, bruised, and septic. If any sign of inflammation or slough appears after labor, it must always be regarded as an absolute indication for removal of the tumor.

OVARIAN TUMORS.—Cysts or solid tumors of the ovary form a rare complication of pregnancy and labor. Small tumors,

especially dermoids, are most dangerous, as they are most likely to become impacted in the pelvis. Large cysts are not likely to block the pelvis, but they produce great discomfort from pressure and are particularly liable to rotation and twisting, or even tearing off of their pedicles. The dangers incident to delivery by forceps, version, or puncture are so great that the records show a mortality of nearly fifty per cent from twisted pedicle, rupture of cyst, intracystic bleeding, suppuration of cyst contents, intestinal occlusion, septic infection, and peritonitis.

Treatment.—When seen early in pregnancy there is no doubt but that an abdominal section, preferably by an intermuscular incision similar to that now employed in operations for appendicitis, with removal of the cysts, gives the best results.

After the fifth month, if the cyst is not impacted and not large, it is right to wait until the fetus is surely viable before operating, but the patient must be kept under constant supervision.

At term, if the cyst is small, the child may be driven past it by the natural efforts of the mother. At times the cyst may be pushed above the brim, the patient being anesthetized if necessary and put in the knee-chest position.

If the cyst is not impacted and labor is progressing well, operation should be deferred until after the birth of the child. With an impacted cyst, puncture or incision through the vagina, and delivery by version or forceps, would seem the most natural thing to do, but its mortality is so great that it can only very rarely be justified. Cesarean section or supravaginal hysterectomy and removal of the cyst offer far greater chances of safety to both mother and child.

Labor may be obstructed by bony outgrowths over certain of the pelvic joints, enchondroma, cysts of the pelvis, hydatid cysts, sarcoma or cancerous infiltration, displaced kidney, and by the muscle mass that sometimes results from ventral fixation of the uterus. In any of these conditions labor may terminate through the pelvic channel when the mass can be pushed aside or removed, but where the obstruction is serious Cesarean section by modern methods will save more lives than forcible dragging of the child through the pelvis. The author's experience is that during pregnancy abdominal operations in general are well borne, and, because of the elasticity and succulence of the tissues, are not as difficult as would be supposed. Where possible see that the excretory organs are put in the best possible condition. Avoid all unnecessary hemorrhage, and particularly use the most rigid precautions against any septic infection.

Pain as a Pathognomonic Symptom of Ectopic Pregnancy.—Henry C. Coe³ states that pain alone, when not accompanied by a clear history of menstrual irregularity, symptoms of pregnancy, and the presence of a tumor at the side of the uterus or in Douglas' pouch, known to be of recent

development, is pathognomonic of extrauterine pregnancy only under certain conditions, viz.: The pain is of a sharp, colicky character, distinctly localized on one side, attended with faintness more or less marked, and is usually followed by intervals of hours or days of complete remission. The pulse is accelerated during the attacks, but there is no rise of temperature. The latter is an important symptom distinguishing ectopic from inflammatory conditions. The violent tearing pain attending intraperitoneal rupture is accompanied by the unmistakable evidence of internal hemorrhage. In extraperitoneal rupture the symptoms vary in severity according to the amount of blood lost, but soon subside, being succeeded by the usual evidences of pressure resulting from a mass in the folds of the broad ligament which displaces the pelvic organs. A persistent pain following the acute attack may indicate localized peritonitis.

Cesarean Section Secondary to Gunshot Wounds.—H. L. Nietert⁴ reports the case of a girl 19 years old who was shot in the lower abdomen, the bullet passing through her gravid uterus from above downward. The abdomen was opened, and after a careful examination it was decided to perform a Cesarean section. The child was found to have a quite severe wound in one arm. The mother survived the operation, but the child died at the end of six hours.

Extrauterine Pregnancy.—J. Whitney Hall¹⁰ reports a case of this kind, in which the interesting points are as follows: Ovum in left tube became impregnated about December 3, 1898. The tube was injured by a blow during a fight on December 9. The tube ruptured in April, 1899, and the fetus, enclosed in the placenta, escaped into the broad ligament and continued its growth to maturity. On September 1, at the time supposed labor pains came on, the child died. The woman carried the dead child three months, when it was removed.

Management of Puerperal Infection.—F. W. Sears¹² states that we are often called upon to attend patients when the system has been severely taxed by the amount of poisons absorbed from the products of putrefaction, and it is our purpose to arrest this absorption by the safest and quickest method. The finger or fingers of the physician passed into the uterus to remove portions too large to be washed away or to serve as a guide to their removal by a pair of small placental forceps, and this followed by a thorough intrauterine irrigation with sterilized water or any other aseptic non-irritating solution, will most effectually stop the absorption. If, after repeated irrigations, we fail to relieve the symptoms, we may find it necessary to resort to the curette, and this should be done carefully and thoroughly, remembering also that there is danger of perforation and, if any septic material is left, an increased absorption. After curetting, the uterus should be irrigated and packed with gauze. If there is a sudden rise of temperature the gauze should be removed and the uterus irrigated. In septic cases he believes that the curette is contraindicated. Here frequent

irrigations with a safe antiseptic solution should be our main local treatment. In giving a uterine douche Sears prefers an ordinary curved glass irrigator.

Disorders of the Nervous System during and after the Puerperium.—Sänger¹³ reports six cases of nervous disturbances appearing during and after the puerperium, which are classed as neuritis puerperalis. Their probable cause is an auto-intoxication with excrementitious substances and they are usually of a polyneurotic character.

Case I.—A woman, 36 years old, always well, had a normal confinement. Shortly before the onset of labor she complained of diminished power and tingling sensations in the left arm. After delivery the same symptoms were also noticed in the right arm, and within a few days both upper and lower extremities were completely paralyzed. The pains extended to the diaphragm and temporarily to the pharynx and rectum. Infection and other intoxicating poisons could positively be excluded. In about six weeks she had regained some power in the extremities, but nearly ten months elapsed before she had fully recovered.

Case II.—A woman, 30 years old, with a negative history, passed through a normal delivery and puerperium. Three weeks later she was seized with an acute general polyneuritis resembling Landry's paralysis; periodical paralysis of rectum; sudden death. Microscopical examination of brain and spinal cord showed nothing abnormal. There were, however, extensive changes in the peripheral nerves and the vagus. Bacteriological examination proved negative.

Case III.—Woman with negative history. Normal delivery, afebrile puerperium. After a few weeks, sensation of numbness in the fingers and loss of power in the lower extremities; vesical tenesmus; reaction of degeneration in the muscles of the calf and fingers. Complete recovery after the lapse of four months.

Case IV.—On the fifth day of an afebrile puerperium, pain in left arm and hand. Diagnosis: neuritis of the median and ulnar nerves of the left side. Rapid recovery.

Case V.—Multipara, age 24 years. She had always been healthy and strong. Normal delivery, no temperature afterward. Ten days post partum complained of pain in lower extremities, followed successively by the same symptoms in the right and the left arms. Gradual recovery.

In the sixth case the symptoms were largely ocular, retrobulbar neuritis with absolute blindness appearing suddenly without any warning during the progress of a normal puerperium.

GYNECOLOGY AND ABDOMINAL SURGERY.

Experiments on Intestinal Suture.—Walter Edmunds and E. C. Stabb¹ have made a number of experiments on dogs to determine the best method of circular suture of the intestine. The methods contrasted were by use of (1) Halsted's

inflated rubber cylinders, (2) Murphy's button, and (3) Taplace's intestinal forceps. Seven experiments by each method were made, with the result that all 7 dogs in which the Halsted cylinders were used recovered, with the Murphy button only 5 recovered, and of the 7 with Taplace's forceps only 4 were successful. The failures were due to non-union. As far as the above results go, the verdict is entirely in favor of Halsted's method.

Intermenstrual Dysmenorrhea.—Malcolm Storer,¹⁴ after having reviewed 45 cases of this disease, has gathered together the following facts:

1. As regards the regularity of the pain, in all it appeared practically every month except when pregnancy intervened. In 22 pain always occurred on a definite day from the beginning of the last menstruation. In 13 there was a variation of two days, and in 4 of four days. In 2 with irregular menstruation it occurred on a definite day before the next menstruation.

2. As regards day of appearance, counting from the first day of the previous menstruation, in 20 it appeared on the fourteenth day, in 7 from the twelfth to fourteenth day, in 6 from the thirteenth to fifteenth day, in 2 on the sixteenth day, in 1 on the fifteenth day, in 1 on the seventeenth day, and in 1 on the eighteenth day. Thus, in 41 cases it came from the twelfth to the sixteenth day.

3. As to its character, in a large number of cases its paroxysmal character was spoken of, the attacks either coming at intervals of several hours and lasting five to fifteen minutes, or else there being constant pain with marked exacerbations, often of the greatest severity, and subjectively much like labor pains. In about half the cases the pain resembles that of menstruation; in the rest it is "entirely different." In 9 there was no pain with menstruation.

4. As to duration, in 10 it lasted 2 days, in 9 three days, in 8 one day, and in only 4 did it last four or more. In most of these it could be inferred that it reached its maximum on the first or second day.

5. As to seat, in 14 the pain was sharply limited to one side, with fairly regular alternations in 2 cases; in 12 it was more general.

6. As to character of discharge, in none of these cases was there associated with the pain any discharge like that of menstruation, although in 2 it was slightly sanguineous.

Diffuse Septic Peritonitis.—G. R. Fowler,⁵ contrary to the ordinary belief, states that the head of the patient with diffuse septic peritonitis should be raised instead of his feet, and thus hinder the rapid absorption of the septic material. In the pelvis we find that the non-absorptive character of the peritoneum is apparent. Microscopical study of this portion of the peritoneum reveals the fact that, while it is rich in capillary lymphatics, large lymph trunks and stomata are comparatively absent. The smaller lymph vessels of this region become

much more rapidly obstructed, and hence absorption from this region proceeds very slowly, and finally ceases altogether, the arrest being coincident with plugging of the capillary lymph vessels with lymph thrombi, the result of infection and consequent inflammation of the lymph vessels themselves, aided by pressure from without, the latter resulting from peri- and paralympangitis. This cessation persists until the toxic properties of the contents of the pelvic cavity are either destroyed or neutralized, when absorption is resumed through some, but not all, of the vessels. Many of the latter remain permanently closed. The latter circumstances correspond to the clinical fact that in some patients many attacks of pelvic peritonitis result in the formation of chronic exudates, due to the inability on the part of the absorbents to remove the latter, at least for a long time.

It is likewise probably true that a certain immunity is conferred upon the peritoneal structure of the pelvis through previous attacks. And inasmuch as invasion of the pelvic cavity may readily occur through fecal stasis in the adjacent rectum in both sexes, and through the open mouths of the Fallopian tubes in the female, it is fair to assume that a certain degree of immunity or non-susceptibility is possessed by the peritoneum in that region through the permanent closure of its lymphatics, which is not shared by that in the other regions.

Reasoning from the facts above set forth, the practical surgeon should be able, in support thereof, to bring to bear evidence that the pelvic peritoneum is less liable to become the seat of danger in cases of septic invasion of the latter. He should be able to show, first, that the pelvic peritoneum possesses a certain degree of non-susceptibility to bacterial invasion; second, that when this does occur the spread therefrom is sufficiently slow to permit of the formation of exudative barriers protecting the more susceptible enteronic and diaphragmatic areas; and third, that the occurrence and retention of large quantities of septic fluid in the pelvic cavity do not give rise to the symptoms referable to the system in general characteristic of the presence of such fluid in the cavity of the peritoneum.

In support of his theory, Fowler reports 9 cases of this variety in which he raised the head of the bed, all of the cases recovering. The elevation of the bed from the horizontal shall be at least from twelve to fifteen inches. In order to prevent the patient from sliding down in the bed, a large pillow is placed folded beneath the flexed knees, and upon this the buttocks rest. The pillow is prevented from sliding by a piece of stout bandage passed through at the folded portion and secured to the sides of the bedstead.

Gall Stones.—A. H. Cordier^e comes to the following deductions after a study on this subject: Cholelithiasis is of frequent occurrence and usually gives rise to manifest symptoms, either severe or obscure. Cholesterin as a gall-stone-

producing agent must be present in an abnormal quantity. Cholesterin is in a great measure a product resulting from the destruction and disintegration of the epithelium of the biliary ducts and gall bladder. Bilirubin calcium, an insoluble compound, the outgrowth of the union of bilirubin and lime salts, forms the nucleus of almost all the stones formed in the ducts and the majority of those formed in the gall bladder. Jaundice, ptomaine poisoning, and suppuration are late symptoms of cholelithiasis. Dyspeptic symptoms, swarthy skin, uneasiness in region of gall bladder (congestion of liver), and loss of weight are some of the remote and local outgrowths of the presence of gall stones. Inflammatory diseases of the duodenum and bile passages are the most direct causative factors in the production of gall stones. Some cases get well without any assistance from the physician or surgeon, yet the progress of the cases that terminate favorably without surgery can be greatly assisted by the physician. The surgery is especially difficult and the inexperienced should not undertake to do it. A ball-valve stone usually continues giving rise to symptoms until removed by surgery. Stones in gall bladder producing septic symptoms should be removed.

Operative Treatment of Fibroids.—W. L. Burrage⁷ reports three cases of fibroids treated by conservative operations. In one case abdominal myomectomy was performed and eleven subperitoneal nodules removed. In another case he did vaginal myomectomy, removing a fibroid from the anterior wall of the uterus. The last case was one of the submucous variety and was removed by morcellation. All of the patients made good recoveries.

1. If the tumor is of small size, of submucous evolution, and projects into the uterine cavity, dilate the uterine canal by a series of sterile laminaria or tupelo tents placed in the canal under strict antiseptic precautions, beginning twenty-four hours before the time set for operation. In this way a more thorough and more gradual dilatation is obtained. Thorough dilatation avoids splitting the cervix—a procedure absolutely necessary in the case of a long and rigid cervix when rapid dilatation is attempted. Splitting the cervix is often an unnecessary mutilation, and, in the case of sloughing fibroids, it offers a fresh cut surface for septic absorption. If time does not serve for gradual dilatation, dilate, when the patient is under ether, with the stout steel dilators until the canal will take the operator's finger. Remove the tumor by twisting, snaring, or by morcellation, according to its situation and character.

2. If the tumor is of subperitoneal or subvaginal evolution and is in the cervical region, and the vagina is of good size, perform either anterior or posterior colpotomy and enucleate the tumor without opening the peritoneum, if possible, closing the incision with buried sutures of catgut.

3. If the tumor is of subperitoneal evolution in the region of the fundus, and in all other cases, open the abdomen, incise the capsule of the tumor along one side and enucleate it, then

close the bleeding surface left with buried continuous sutures of catgut.

At the present time he seldom has occasion to do curetting without other operation in fibroids. Steaming of the uterine cavity in fibroids is not advocated by those who have had the most experience with this method of treatment.

Correlation of Sexual Function with Insanity and Crime.—H. Macnaughton Jones^{*} believes that the correlation of insanity and disordered sexual functions arising out of the generative organs is a factor to be taken into serious consideration in the treatment of women mentally afflicted. That where there is ground for the suspicion that some abnormal condition of the uterus or adnexa exists which may produce or aggravate the mental affection, a careful examination, under an anesthetic if necessary, should be made. That in the investigation of criminal acts committed by women, either during the menopause or while the menstrual function is either active or suppressed, due weight should be given to the influence exerted by its irregularity or abeyance on the mind of the woman; in doing this her previous history and temperament have to be considered. That the special dangers of the climacteric period and the symptoms indicative of threatening mania must be collected; the principal of these are moroseness and depression of spirits, attacks of hysteria, occasional hallucinations of sight and hearing, and especially of smell, suspicions with regard to relations, unjust dislikes, unfounded apprehensions of some great crime committed or injury inflicted on them, suicidal tendencies. Here again examination of the pelvic viscera is called for. That in operations on the female generative organs there is a greater predisposition to mental disturbance than after other operative procedures; further, post-operative insanity is usually of a temporary nature. That women who have been previously insane are predisposed to a relapse by the development of disease in their sexual organs, and especially to temporary recurrence of insanity after operation on these organs. Under all such conditions, and in the face of these warnings, the greatest supervision and care are required to anticipate the insane impulse and to prevent suicide or crime in the case of women who manifest symptoms that may have their origin in disorders of the sexual organs.

Amenorrhea from Other than Constitutional Causes.—F. W. N. Haultain^{*} emphasizes the following facts concerning this subject: 1. That acquired amenorrhea may be due to functional inactivity of either uterus or ovaries alone, and may in those be treated effectively. 2. That treatment is to be directed along lines indicated by the dimensions of the uterus. 3. That the lines thus indicated are uncertain, from the influences of the central nervous system, which may be the primary cause. 4. That, from the amount of success obtained, treatment is justifiable and should be attempted if the patient so desires.

Cancer.—Robert Abbe¹¹ states that the progress toward the cure of mammary cancer has come from the recognition of the following anatomical distribution of the lymphatics.

1. Those which drain the mammary gland directly toward the axilla, through parallel channels in the cellular tissue, coursing from the axillary edge of the gland to the axillary vein, interrupted by occasional lymphatic glands, finally concentrating in several channels lying upon the axillary and subclavian veins, mostly at the junction with the jugular.

2. A series from the deep aspect of the gland passes directly to the bed of cellular tissue between the gland and the pectoral muscle, where it is joined by lymphatics emerging from the pectoral muscle, and these together travel toward the axilla upon the pectoral fascia.

3. A series extending from the mammary gland directly outward to the overlying skin communicates with the lymphatics of the skin itself.

4. Another series extends toward the sternum and is associated with the veins, penetrating the sternal part of the pectoral muscle, and thus enters the mediastinum.

To-day the axilla is regarded as primarily contaminated almost as soon as any tumor can be recognized in the breast. Examination of one hundred consecutive cases has demonstrated that the axillary glands are practically always involved, hence good surgery demands the entire dissection of the axillary lymphatics.

Too much emphasis cannot be laid upon the operative infection of the wound by cutting infected glands and lymphatic channels, or discharging into the healthy wound infected cells squeezed from the parts being removed. It seems to Abbe that the preparation of the patient prior to operation on mammary cancer, by severe and sometimes harsh scrubbing of the skin of the operative area by the nurse, has a measure of risk in disseminating the disease in the cutaneous lymphatics, which may in a measure account for the recurrences in the line of the scar.

Peritoneal Section.—H. T. Byford¹² advocates the use of four drachms of fluid extract of cascara, or some equivalent, two hours before the time set for the operation; drachm doses of sulphate of magnesia every hour from the time the patient awakes after the operation, and a high glycerin and water enema, two drachms to four ounces, every two hours, beginning eight hours after. A high glycerin enema can be given before the patient leaves the table after operations in which adhesions were separated and raw surfaces left. After the first day, to obtain a daily evacuation, two drachms of sulphate of magnesia or two or three ounces of Hunyadi water are given night and morning for two weeks, the doses being regulated according to the effect. In this way there is little chance for adhesions at any time. In cases where a stimulant is indicated, an ounce of whiskey may be added to the enema given on the operating

table. Where much blood has been lost a high beef tea is given.

Mortality resulting from Abdominal Section for Pus in the Pelvis.—I. S. Stone¹² believes the abdominal route may be selected in the vast majority of "real pus cases," because it not only gives a better opportunity to deal with diseased pelvic structures, but also facilitates the inspection of the abdominal viscera and the relief of any pathological condition of these organs. The vaginal route is still used by the writer as occasion demands, as when a "pelvic" abscess is pointing in the vaginal vault. In the majority of cases he advises abdominal section; in a certain small number vaginal puncture; and in a third class when the abscess is large and situated high in the pelvis, he reaches it through the abdomen, evacuates and drains without attempting "enucleation," if the patient is evidently too much exhausted to bear a radical operation. In short, the pus should be sought for and evacuated from that quarter which gives the easiest approach and speediest and safest exit consistent with the present condition of the patient and having in view her permanent restoration to health. The mortality of his cases has been about 2.3 per cent for the last three years.

Vesico-utero-vaginal Fistulæ.—These are formed by more or less extensive laceration of the bladder, anterior vaginal wall and anterior lip of the cervix, thus establishing direct communication between these three cavities. Owing to their inaccessibility, operations present considerable obstacles, and every effort to simplify and also perfect the technique must be given careful consideration. Bardesen¹³ publishes a new operation, which appears to be both simple and practical; he also reports three cases successfully operated after his method.

The technique of the operation is as follows: Patient in dorso posterior position, with hips raised. Depression of posterior vaginal wall with a Simon or other speculum, exposing the fistula. Scar tissue and adhesions preventing easy access to the fistula are removed or divided if required. The cervical remnant is seized with volsella or muzeau forceps and traction made next in incision upon either side of the fistula (Fig. 1), dividing the vaginal wall down to the cervix. The object is to facilitate the separation of the anterior uterine wall from the surrounding tissue. With the finger or scissors the bladder is detached from the uterus up to the reflexion of the peritoneum. It is desirable not to open the utero-vesical pouch at this stage, to avoid contamination with urine. This, however, is not always avoidable, especially if the uterine lacerations are extensive or the peritoneal reflexion extends very low. Should this accident occur, it is advised to immediately tampon the opening with iodoform gauze.

The uterus now being freed and movable, the next step of the operation is to repair its defects. With a sharp curette the cavity is thoroughly explored, the mucous membrane removed

and subsequently touched with a three per cent carbolic acid solution. The edges of the tear are denuded and united with

Fig. 1.

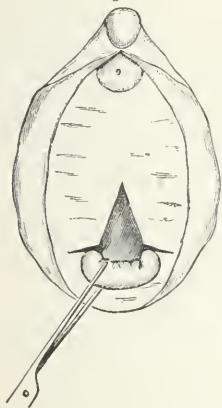


Fig. 2.



FIG. 1 —Cervix is pulled down. Bilateral incision through vaginal wall.

FIG. 2 —Separation of vesico-vaginal septum and opening of peritoneal cavity.

interrupted catgut sutures. Care is advised not to perforate the uterine cavity. Two to three sutures usually suffice. If,

Fig. 3.

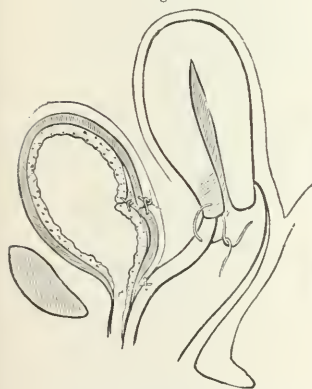


Fig. 4.

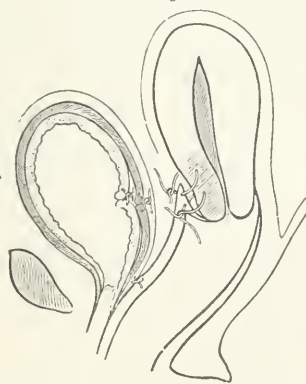


Fig. 5.

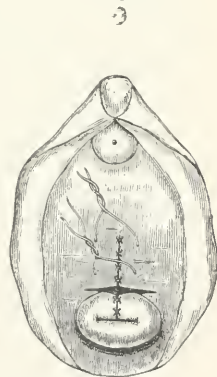


FIG. 3.—Suturing of vesical opening with two rows of catgut sutures. Anterior layer of pelvic peritoneum is brought forward and sewed to the vesico vaginal junction. Vagina is fastened to the repaired cervix.

FIG. 4.—Operation completed, showing utero-vagino-fixation. The sutures are passed through the body of the uterus, and not the cervix, to obliterate the newly formed utero-vesical space.

FIG. 5 —Anterior view of completed operation, showing repair of vagina and sutures for vaginofixation.

owing to extensive injuries, repair of the cervix is not possible or is difficult, amputation of the cervix is recommended.

This being completed, the next step of the operation is the division of the vagino-vesical wall and obliteration of the fistula. Proceeding from the vaginal incision (Fig. 1), the margins of the fistula are undermined with either scissors or bistoury to about two to three centimetres, thus giving to the vesical wall the desired mobility (Fig. 2). The edges are then seized and brought down into better view. It is not difficult to bring the fistulous opening almost outside the vulva, making repair quite easy. The opening in the bladder is closed with two rows of catgut sutures, the first being a purse-string suture including only the mucous membrane, while the second is a continuous suture including both the muscular and mucous coats. Before proceeding further the bladder ought to be distended with boric acid or any other mild antiseptic solution, to test the exactness of the sutures.

The third division of the operation consists in the opening of the vesico-uterine pouch and colpo celiorrhaphy. The peritoneal fold opposite the incision into the fornix vaginae is opened. The anterior fold is grasped with two pairs of forceps and pulled down to the vesico-vaginal junction, where it is sewed to the vagina (Fig. 3). Thus peritoneal tissue is interposed between bladder and vagina, forming an additional layer, which enhances the strength of the vesical sutures and also assures absolute fixation of the bladder. There are, however, cases in which, owing to extensive inflammatory change, the peritoneal fold is obliterated and difficult to recognize. Even if found it is usually fixed by many adhesions, preventing its being brought into the desired position. Under such circumstances colpo-celiorrhaphy is omitted and the completion of the operation confined to the repair of the vagina and utero-fixation (Figs 4 and 5).

After-treatment.—Introduce a Nélaton catheter into the bladder and leave *in situ*. Tamponade of vagina with iodoform gauze. Irrigation of bladder twice daily with solution of boric acid. Care must be taken not to overdistend the bladder. Vaginal tampon changed every second day. Patient must be kept in recumbent or lateral position, with limbs flexed, to avoid tension of abdominal walls. Permanent catheter removed from sixth to ninth day; after the catheter is used as required, patient must not pass urine spontaneously. Vaginal sutures removed on tenth day.

Forceps in Mortua; Living Child.—Neumann¹³ reports the following interesting case: A physician was summoned to a woman, but upon arrival found that she had died undelivered. He immediately sent for his forceps, which arrived about ten minutes after the apparent death of the mother. Strange to say, he was able to deliver a child, but slightly asphyctic, which soon cried and continued well and healthy.

Persistence of Gärtner's Canal.—Vossmer¹⁴ observed Gärtner's canals in the uterus and vagina of a girl who died when 2 weeks old. The right one ended in the uterine muscularis.

That of the left side could be traced from the parametrium to the portio and hence to the vagina, where it ended in a blind dilated pouch.

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DISEASES OF CHILDREN.

Acute Suppurative Arthritis of Children.—James E. Moore¹ says that this inflammatory process, as a rule, occurs either as a complication or a sequel of other diseases, and may begin either as a synovitis, an epiphysitis, or an osteomyelitis—usually the last. When accompanying the exanthemata, diphtheria, or typhoid, it is usually due to a streptococcus infection. Cases complicating pneumonia have been reported in which the diplococcus was the cause. The joints most commonly affected, in the order of their frequency, are the hip, knee, shoulder, and elbow. When a decided rise of temperature or a sudden attack of pain occurs in a child suffering from or recently recovered from any of the above-mentioned diseases, all of its joints should be carefully examined. The most common error is to make a diagnosis of rheumatism. The latter does not remain in any one joint to the exclusion of others for any length of time, and it is not a suppurative affection. Suppurated synovitis as a complication or sequel may be polyarticular. It may be confounded with the bone affection of infantile scorbutus, but in the latter careful examination will demonstrate that the soreness is in the shafts of the bones. When the diagnosis is thoroughly established, the only treatment to consider is free incision and drainage. The author describes several cases and the operative procedures which were undertaken for their relief.

Cretinism.—Christopher Graham² discusses endemic and sporadic forms of this disease, and the function of the thyroid gland. Regarding the primary causes that destroy the gland or prevent its function he says we have little or no understanding. Whatever these primary causes may be, there is common agreement that the condition is due to maldevelopment of the thyroid gland, its absence, atrophy or hypertrophy, perverted or abolished secretion; that the trouble manifests itself either in early embryonic life, appears at birth or soon after, or is delayed until late childhood. In regard to the *treatment*, he observes that as in idiopathic myxedema, cachexia strumipriva, infantilism, and the like, so in cretinism, thyroid therapy has wrought marvellous changes and demonstrated the value of experimental therapeutics. Through the number of cases treated and reported it has been clearly

shown that thyroid treatment offers the greatest good to the suffering cretin. The capabilities of treatment are: *first*, removal of the myxedematous condition; *second*, quickening of physical development; *third*, awakening of the intellect. The shorter course the disease has run, and the younger the patient toward whom treatment is directed, the more nearly perfect the final result. Treatment must be continued throughout the entire life of the individual, otherwise relapses occur. It is sufficient in most cases to give a large weekly or bi-weekly dose after distressing symptoms are relieved. The dose for a child varies from one-half to one grain at the beginning, gradually increasing to five or more, while keeping track of any untoward symptoms and decreasing the dose or discontinuing it for a time, then resuming with less amount. Cretins bear thyroid better than adult myxedematous patients, but the effect is the same; therefore treatment is safer in the former than in the latter. Danger signals are increased temperature, rapid pulse, insomnia, restlessness, digestive disturbance dyspnea, muscular twitchings, and tremor. Early signs of improvement are lessened stupidity, improvement of the myxedematous condition, mental and physical awakening, and attempts at speech.

Croup, Non-bacillary.—J. O. Symes³ holds that the acute membranous affection of the fauces extending to the larynx and trachea, excited by agencies other than the Klebs Löffler bacillus, should not be classed with diphtheritic affections, the term diphtheria being better reserved for cases in which the bacillus is present. A membranous condition of the fauces may be excited by burns, scalds, or chemical irritants, by the cautery, or by micro-organisms. The onset of non-bacillary croup is much more sudden than that of diphtheria, and the temperature rises more quickly and to a higher point. The membrane is yellowish, softer than in diphtheria, less firmly matted together, more easily detached from the underlying tissues. Placed in water the membrane swells, losing its characteristic shape, probably owing to the large amount of mucus it contains. The surface from which it has been detached is seldom bleeding or ulcerated, and its epithelium may be intact. Examined microscopically the membrane is found to consist of pus cells, leucocytes, and fibrin. Out of 7 cases reported by the author 4 died. Death is usually consequent upon the general septic infection or upon broncho-pneumonia. Streptococci, staphylococci, and a large stout bacillus with rounded ends are found; and if the disease is not actually caused by one or other of these, the association is a very close one. As to treatment, the exudation can be easily detached by means of a swab, and the local condition much improved by syringing the fauces with a solution of formalin 1:250 and by irrigating the nose with warm boracic acid solution. The dyspnea is relieved by intubation or tracheotomy, but the tubes require constant, careful cleansing on account of the excessive secretion of mucus. In marked septicemic cases.

relief might follow the administration of antistreptococcus serum. The constitutional treatment is identical with that used in diphtheria.

Dermoid Cysts in the Anterior Fontanelle.—Emilio Curzio⁴ reports a case. The diagnosis of these cysts is not easy, but they are to be distinguished from meningocele and encephalocele as follows: 1. *Situation*.—Meningocele is very rare at the bregma, and is most common at the occiput or the root of the nose. 2. *Course*.—Dermoid cyst is not evident at birth, but appears later and grows slowly without causing any disturbance, while meningo-encephalocele is usually visible at birth and is not so regular nor so innocuous in its course. 3. The skin covering a cyst is normal, but in meningocele it is thin, adherent, and tense. The cyst is nearly always irreducible. There are neither bruits nor pulsations. The cyst is scarcely, if at all, movable. The only treatment is removal, and operation can be performed as early as the sixth month, but it is better to wait until the fontanelle has diminished in size and the child is about a year old.

Dilatation of the Colon.—F. T. Stewart and Alfred Hand⁶ report two cases in detail and discuss the condition. Colic dilatation, whether congenital or acquired, may be due to an obvious obstruction or may be idiopathic. The latter term merely veils our ignorance, for there must be a cause, whether a kinking or twisting of the sigmoid flexure, or some similar imperfect but nevertheless definite mechanical obstruction which has thus far eluded the curious fingers of the pathologist. Congenital and acquired mechanical obstructions are relieved by surgery. Idiopathic dilatations of the colon have been, with few exceptions, treated medically, but Harrigan, Halsted, Griffith, and Richardson operated for the condition. Two exploratory operations have been performed. The operative procedure best suited for this condition could be definitely outlined at the time of operation only, the objective point being either drainage or removal of the large bowel. If the patient be *in extremis*, an artificial anus would be indicated, leaving more radical measures to a later period. If undertaken with the patient in good condition, a resection of the sigmoid might be advisable, as great distension of this portion of the large bowel alone has been observed in several cases; or the ileum might be implanted into the rectum and the lower end of the colon sutured in the abdominal wound so as to drain it, thus side-tracking the entire large bowel and leaving it to atrophy. All cases of chronic constipation with a persistently swollen abdomen should be scrutinized by the surgeon; for, although he may find no obvious cause, he may yet adopt a course shaped to save life, mitigate suffering, or cure the patient.

Diphtheria.—A. Jefferis Turner⁶ gives the statistics of the results of the treatment of diphtheria in the Brisbane Hospital for Sick Children. The subjoined table records the mortality in all cases of diphtheria at each year of life before and after the introduction of antitoxin, and speaks eloquently in favor of the remedy.

MORTALITY OF ALL CASES OF DIPHTHERIA AT EACH YEAR OF LIFE
BEFORE AND AFTER THE INTRODUCTION OF ANTITOXIN.

Age Last Birthday.	Preantitoxin Period.			Antitoxin Period.		
	Cases.	Deaths.	Mortality.	Cases.	Deaths.	Mortality.
			Per cent			Per cent.
Under 1 year	11	9	81.8	7	2	28.6
1 year	44	32	72.7	35	10	28.6
2 years	56	37	48.2	48	10	20.8
3 "	44	49	43.1	44	6	13.6
4 "	53	14	26.4	47	3	6.0
5 "	38	9	23.7	54	4	7.4
6 "	23	10	38.6	42	4	8.2
7 "	16	5	38.5	19	1	8.2
8 "	6	1	16.7	8	..	0.0
9 "	7	..	16.7	6	..	0.0
10 " . . . . .	..	..	16.7	5	..	0.0
11 "	1	1	16.7	2	..	0.0
12 "	3	..	16.7	..	..	0.0
13 "	1	1	16.7	..	..	0.0
Total	303	128	42.2	317	40	12.6

All other forms of treatment he considers of minor importance, excepting in emergencies. If patients and medical men did their duty, the former in calling assistance early, the latter in applying the remedy early and in sufficient dose, the death rate from diphtheria might be reduced to a small fraction of what it is at present. Indeed, with the necessary qualifications, it may be said that no child ought to die of diphtheria.

John H. Musser⁷ advocates the use of antitoxin, especially in small and frequently repeated doses. The author commenced giving the serum before the publication of any statistics of the subject could be of assistance. From reasons of prudence the first doses given were small, and the results were so satisfactory that he has never found it desirable to increase the initial dose, and prefers to give the remedy in smaller doses and more frequently than to follow the general tendency of the time to increase the initial amount. This method implies recognition of the disease at the earliest moment possible, and very close observation. The results appear to be as good as any reported. In 7 cases (out of 14 reported) the temperature fell to normal, and remained so, in forty-eight hours. In 5 cases it was normal within three days, and in 2 very severe infections within five days. The method has been as follows: For children up to 6 or 8 years the initial dose is five hundred immunizing units, to be repeated at intervals of six hours if the fever does not fall, if the strength of the patient does not improve, or if the local manifestations are spreading. For children over 8 years one thousand immunizing units are given as an initial dose, and this is repeated at intervals of eight to twelve hours

as needed. The only disadvantage in the method is the pain caused by the successive injections, but the author has not found that this objection is sufficient to overbalance the discomfort of the urticaria and the general symptoms that appear to be more common after larger dosing.

Ear, The.—Perry G. Goldsmith⁶ gives the following points in treatment of discharging ears: 1. Very gentle hot water irrigation of the external auditory meatus is beneficial in relieving the pain. A mild non irritating antiseptic may advantageously be added. 2. Eustachian inflation is not advised by many noted authorities. To the author it seems to be indicated, since we usually have a partially blocked tube and a tympanum filling with serum. Before using a catheter, however, the pharyngeal vault should be well cleansed and the mouth of the Eustachian swabbed with absorbent wool to remove the plug of mucus which is so frequently present. 3. Thoroughly cleanse the external auditory meatus, since should there be a discharge it may be simply aseptic serous exudation and may be rendered septic by influences acting from the meatus. 4. Leeches in front of the tragus not only relieve pain, but deplete the engorged internal vessels. Leeching is particularly indicated in otitis media due to influenza. 5. Administration of a brisk saline purge, preferably sulphate of magnesium in small and repeated doses. 6. Morphia masks the symptoms. Should the pain demand it, the drumhead should be frequently inspected, in order that if there is to be a perforation it shall be made by the surgeon. 7. Poultices are bad and usually dirty. They tend to produce softness and ulceration of the deeper parts. A compress of hot boracic acid lotion is less harmful. 8. If the membrane bulges, and particularly if a yellowish spot be detected, paracentesis of the membranam tympani is the only rational procedure. In regard to *treatment if the discharge persists and treatment of chronic suppurration of the middle ear*, the author says that mere gentle catheterization with some soothing oily and antiseptic vapor, as menthol and paralene, and gentle syringing of the meatus with a mild antiseptic, with thorough drying of the canal, is usually sufficient. Should this treatment fail, attention must be directed to the naso-pharyngeal vault, douches of solvents for the mucus and astringent applications to the orifice of the Eustachian tube being usually indicated. Adenoids must be removed. Too small a perforation of the drum will sometimes have to be enlarged to allow of free exit of the discharge. Granulations and aural polypi may be present, which may be cauterized with phenol or, if large enough, removed. Granulations on the posterior wall of the bony canal indicate involvement of the mastoid and a radical operation is demanded. Chronic discharge without granulation or caries should be treated by remedies applied through the external auditory meatus (1) to dissolve the discharge, which consists of much globulin and some mucin and gas globules; a solution of sodium sulphate 2 per cent and sodium carbonate 2 per cent is the best.

(2) Disinfection; bisulphate of mercury in 1:1000 or 1:2000 solution is the most potent antiseptic and does not precipitate the globulins when mixed with the above-mentioned solvents. (3) For regeneration of the tympanic mucous membrane cleanliness is of the greatest importance. Absolute alcohol in varying degrees of strength, with or without boric acid or sulphate of zinc, is of great utility. Sharp pain may occur, but passes off quickly and seldom occurs after the first few applications. If (4) closure of the perforation is not done by Nature after the stoppage of the discharge, the application of Blake's paper discs to the membrum tympani may be followed by a rapid closure.

Earache in Children.—T. H. Halsted^{*} thus sums up an article on the significance of this affection: 1. Earache in children is usually caused by acute inflammation of the middle ear, suppurative or catarrhal. 2. Infants and young children may have suppuration in the middle ear without giving satisfactory evidence of pain or without rupture of the drum membrane. 3. In the absence of other known cause of pain from which a child is evidently suffering, the first cause to be thought of should be acute otitis media, and this calls for an examination of the drum membrane. 4. It has been shown by examination of the middle ear during life and post mortem that purulent otitis media is nearly always present in acute infectious diseases of the gastro intestinal and respiratory tracts in young children, especially in gastro-enteritis and broncho-pneumonia, to which diseases it probably stands in a causative relation. 5. The cause of death in many acute and chronic infectious diseases, in meningitis, and in the exanthemata is the result of unrecognized and untreated abscess of the middle ear. 6. Repeated earaches in children are ordinarily but a sign of acute exacerbations of a chronic otitis media resulting from adenoids. 7. In adult life, so-called catarrhal or progressive deafness is often but a final stage of the otitis media which had its beginning in early childhood, when it was due to adenoids and practically curable.

Hair-swallowing.—G. W. W. Brewster^{*} reports the case of a girl of 10 years who was suffering from intestinal obstruction that had lasted two weeks, and was almost moribund. On opening the abdomen in the median line above the umbilicus, distended and collapsed intestines presented. A mass was felt up under the liver and was drawn out of the abdomen. It was situated in the small intestine. As it could neither be pushed along the intestine nor broken up, the bowel was incised and a mass of hair was delivered. The incision in the intestine was closed by interrupted Lembert sutures of silk and the abdomen closed with a gauze wick to the intestinal suture. In spite of a rapid operation the patient steadily failed and died five hours later. Subsequently the writer learned the child had a habit of chewing the ends of two long curls which hung over her shoulders. The hair ball measured $3\frac{1}{2}$ inches in length and $4\frac{1}{2}$ inches

in circumference. It was composed of long and short hairs firmly matted together.

Frederick D. Lyon⁹ was called to see a child, 2 years of age, in convulsions. In watching it he noticed that it picked at the blanket and, pulling off some of the hair, put it in its mouth. The mother stated that the child always picked at the carpet, its undershirt, or anything of a hairy nature. Calomel caused the passage of a ball of hair as large as a silver dollar, together with some smaller masses. The child has had no more convulsions.

Hygiene of Children's Sleeping Apartments, The.—Joseph Byrne² urges that more attention be paid to the rooms where children, especially those of the working classes, sleep. In his experience, far too little fresh air is admitted. The amount of work done by children running about in the daytime, the metabolic activity of their growing bodies, their mental activity, the access of new impressions, the deficiency of control in the higher centres which have not as yet acquired their full mastery—all demand oxygen most imperatively during the hours of repose, when the work of reconstruction is going on and the exhausted neurons are recovering strength and substance. Adenoids and nasal obstructions enhance the pernicious influence of deficient cubic space, and are themselves in turn aggravated and perhaps sometimes caused by it. In conclusion the author says: 1. Windowless middle rooms should be abolished. 2. The best room in the house should be used as the bedroom. 3. Bedrooms should be properly ventilated during the night. 4. Bedrooms should not be swept, but mopped with a moist cloth. 5. Kitchen and gas stoves are to be reckoned with no less than adenoids and nasal obstructions in treating various diseases of infancy and childhood. 6. Backward children should be protected by the physician.

Idiocy.—J. Park West⁹ urges the early diagnosis of idiocy because of the importance of beginning treatment as early as possible. A cursory view of some cases tells the entire story, but in others careful and repeated examinations and comparisons must be made, and the statements of interested persons weighed most carefully, before arriving at a conclusion. No single sign is always diagnostic. This is nowhere better shown than in the size and shape of the head. A grossly stupid imbecile may have a cranium that is perfectly normal as to external appearances, while not a few bright and well-balanced individuals have heads that vary greatly from the normal, both as to size and shape. One of the earliest symptoms in congenital cases is abnormal movements. In a normal, healthy infant the arms and hands, head and legs, are never still. The continual absence or the slow and intermittent performance of this microkinesis is suggestive of mental impairment. Like tremor, twitching or jerking is indicative of trouble of the nervous system. A dull, unintelligent look often accompanies the former, and a frightened stare or an easily produced fright the latter. Defective development

and defect in the formation of some part or parts are not unusual. As a rule congenital idiots grow slowly. They are very slow in learning to hold up the head and in attempting to sit or to change their position. They take little notice, have a vacant look, seldom smile, and are months instead of weeks in recognizing their mother. Usually they are very quiet, but there is the other class mentioned that is unduly irritable and much of the time fretting and crying. Nursing is often difficult, particularly in those with a high palate, and swallowing and breathing may be unnatural.

Injuries of the Nerves due to Fracture.—Charles Greene-Cumston¹¹ reports a case of a young girl in whom a fracture of the humerus caused a paralysis of the median nerve. In operating for relief of this condition, an incision 10 centimetres long was made, the nerve exposed by dissection and then followed up above. It was found to become gradually broader and thinner for a distance of about two centimetres, and ran over a sharp projection of bone. The nerve having been lifted up and freed from the connective tissue which partly embedded it, the bony projection was chiselled away so that when the nerve was placed back it lay perfectly flat and no bone pressed upon it. This bony projection was the callus, because it was very vascular and of new formation. The wound was closed with one buried catgut suture, and interrupted wire sutures for the integuments. No improvement in the functions of the hand was evident until five weeks later, when the sense of touch began to return. Eleven weeks after the operation the motor functions were nearly perfect. This and similar cases demonstrate that when surgically treated these nerve injuries due to fracture have a most favorable prognosis, and it is quite safe to assume that in cases of non-complicated fractures a good result may be expected, provided *that an operation is done for their relief as soon as the diagnosis has been made.*

The most frequent of all lesions to the nerve is contusion at the time the fracture takes place. The severity of the lesion naturally varies with the amount of force in play at the time of the traumatism, so that a nerve trunk may be only injured so slightly that no pathologic changes occur, or it may be completely crushed. Consequently the functional disturbances will vary greatly. Secondary injury is not infrequent, and after the callus has formed it compresses the nerve trunk, or the pressure may result from an abundant proliferation of connective tissue at the site of the fracture. The callus may simply press upon the nerve or may surround it completely. Pressure from a misplaced fragment may also happen. Other nerve lesions are total or incomplete laceration by direct force or by a dislocated fragment of the fracture; the radial nerve appears to be the one most frequently injured in this manner. Cases have occurred where a nerve trunk has been caught between the ends of the fracture, the symptoms being immediate paralysis of the parts supplied by the nerve and

pain. As a very rare lesion there is traumatism of a nerve by splinters of bone. Complete laceration of the nerve trunk may sometimes occur.

Intussusception, the Mortality and Treatment of Acute.

—Fred Kammerer¹² says that, in taking a broad survey of the recent literature of the subject, one conclusion can be speedily reached—that non-operative treatment is less in favor than formerly, and early operative interference has become more popular with the profession. Of the bloodless methods, only one deserves any serious consideration: the injection of fluids into the rectum. The method is applicable only to cases of intussusception in the large intestine; intussusception of the small gut cannot and should not be treated by water enemata, as the author does not believe that a fair amount of pressure can be attained in the small intestine without great danger of rupturing the colon. He has a decided feeling that the mortality from intussusception could be vastly reduced if all cases were operated on immediately after the diagnosis had been made. A number of operative procedures are available when reduction is not possible: 1. Resection of the entire intussusception, with end-to-end suture or the establishment of an artificial anus. 2. Resection of the intussusceptum after longitudinal incision of the sheath. 3. The establishment of an artificial anus or of a lateral anastomosis, leaving the intussusception untouched. The mortality of laparotomy, when reduction is not possible, is frightful. The establishment of an artificial anus alone does not commend itself. Resection either of the entire intussusception or of the intussusceptum alone are the methods which should be employed in irreducible cases. The author finds that, contrary to the usual opinion held, children bear laparatomies fully as well as adults, provided there be no great loss of blood. We can avoid hemorrhage with almost absolute certainty during these operations, and shock as the result of manipulations of the intestines ought to be much less severe in children than in adults with a well-developed nervous system.

C. L. Gibson,¹² speaking of the necessary factors in the successful treatment of intussusception, says that his purpose is to demonstrate that the main feature of expected success in relieving intussusception depends, first, on the intussusceptum being found in a reducible condition and free from septic changes, and, second, that such a favorable condition can ordinarily only be met by a very early interference. That is, the prognosis depends absolutely on the promptness of relief. As soon as we encounter the second degree of severity, the irreducible intussusception, speaking in the strictest sense as of a purely mechanical phenomenon entirely free from septic conditions, the mortality is at once more than doubled; and when we encounter the third variety, gangrene of the intussusceptum, the state is so severe as to be almost beyond the hope of relief, for we are dealing with a profound toxemia which if not checked is necessarily fatal and so affects the

resisting power of the patient that even a trivial interference cannot be borne. And yet, in order to entertain the slightest hope of saving the patient, the operative measures undertaken must be drastic. A double indication exists—the relief of the obstruction and the relief or elimination of the gangrenous element. That the condition of the intussusceptum has the greatest influence in determining success or failure is evident by the following contrasts in the statistics of 187 laparatomies:

Reducible.....	126 cases	Mortality, 36 per cent.
Irreducible.....	14 “	“ 64 “
Gangrenous.....	23 “	“ 95 “
Irreducible or gangrenous..	24 “	“ 75 “

Operations on the first day show a mortality of 37 per cent; on the second day, 39 per cent; on the third day, 61 per cent; on the fourth day, 67 per cent; on the fifth and sixth days, 73 and 75 per cent respectively.

Elward J. Ill¹³ reports several cases of this affection in infants successfully operated upon. The old opinion that operative interference is as unsatisfactory as medication and enemata, he says, must rapidly give way to the more advanced one that early, prompt, quick, and clean surgery offers the best chances for success. The operation should follow the diagnosis, and the diagnosis should be and can be made by the practitioner at an early hour. Every lost hour increases the risk to the child. If a tumor is felt, the incision should be made in the median line nearest to the mass. In other words, if the tumor is above the navel, the incision should be above the navel; if below the navel, the incision should be there. The space between the navel and the pubes is very short, and the incision may have to extend above that landmark. All manipulations should be made in the abdomen itself. It will rarely prove possible to remove the invaginated gut from the cavity of the abdomen. If possible the eyes should follow all movements, so that any injury to the bowel may be promptly repaired. The author's experience has taught him that the best manipulation is exercised by pressure from the apex of the invagination toward the base. He advises close inspection of the reduced bowel and mesentery for several moments, to observe if there be any tendency to relapse and possible injury during manipulation. All manipulations should be made with the greatest gentleness. It is hardly necessary to add that there is no room for antiseptics in so tender an organ as the peritoneum of a child; therefore all antiseptics should most carefully be washed from the hands, and dry hands should be used for the operation. The prognosis will depend upon six conditions: 1. The length of time elapsed after the accident before the operation. 2. The length of the operation. This will depend upon the celerity and properly directed efforts of the operator, as well as upon the severity of the case. Under this heading must be considered the very great

risk of the anesthesia. 3. Most careful asepsis. 4. Freedom from injuries to the bowel. 5. Extent of the invagination. 6. The location of the intussusception must have some bearing on the prognosis. Thus it is very difficult to withdraw the ileum from its imprisoned ileo-cecal valve.

Sepsis in Early Childhood.—Finkelstein¹⁴ made bacteriological blood examinations during life in 62 cases of gastro-enteric disease and found it sterile in 30. The staphylococcus pyogenes albus and aureus were present twenty times; bacillus coli communis, six; proteus, once; pyocyaneus, once; proteus and pyocyaneus together, three times; pyocyaneus and the staphylococci, once. Severe sepsis with marked general symptoms can exist with gastro-enteric symptoms, which may become of a choleraic nature. Bacteriological blood examination does not prove that the sepsis finds its only expression in a gastro-enteritis. Visceral complications occurring in the course of intestinal diseases are usually only dependent upon such diseases in the sense that the predisposition to their development is acquired in their course. Secondary septic infection and agonal bacterial blood invasion usually occur from the skin, or mucous membrane other than that of the intestinal tract. The latter seems to act as the point of entrance for bacteria into the circulation only if deep necrotic inflammation or losses of substance are present. In streptococcus enteritis the cocci seem to be able to enter the circulation even from the moderately affected intestine. Local and general septic processes are not to be looked upon as primary causes of chronic atrophy and similar conditions, but as complications of them.

Scarlet Fever.—Annie Sturges Daniel¹⁵ gives a clinical study of 450 cases of scarlet fever occurring in children under 12 years of age in the tenement houses of the East Side in New York City, an overcrowded district containing chiefly a foreign population, in sanitary surroundings varying from moderately good to very bad. The nursing has been of a most varied character, from that of an intelligent mother to that of a drunken woman. The largest number of cases occurred at 3 years, the smallest under 1 year. There was a premonitory period of twenty-four hours in 55 cases, two days in 46, three days in 11, four days in 6. The remainder were seized at once. *The first symptom* was the eruption in 186 children; fever in 28; vomiting only in 41; fever and vomiting in 27; sore throat in 18; chill in 2; spasms in 2. *Fever*—The highest rectal temperature was 105° F. in one child, the lowest 98.4° in 2 children. The fever in the majority of cases fell on the third day. *Heart*—66 children presented an endocardial murmur, which remained permanent in 3. *Involvement of joints*—89 children complained of pain in various joints. *Gastro-intestinal catarrh*—4 patients. *Bronchial catarrh*—24 patients during the period of eruption. *Kidneys*—23 children had albumin and casts in the urine, which rapidly disappeared. This small number is probably due to the fact that the majority were so young. *Kidney complications*

occurred as a solitary one in 15 patients. *Angina*—in no case was the Klebs-Löffler bacillus found. Two children had angina with involvement of the larynx, 5 severe angina with endocarditis, 1 angina with complete temporary deafness, 1 angina with regurgitation of fluids, 5 angina accompanied by eruptions, 10 angina with suppurative of submaxillary glands, 4 angina with severe arthritis, 1 severe angina pleurisy with effusion and arthritis. *Involvement of the nervous system*—all cases with fever had a moderate amount of delirium; 2 were introduced with spasms. *Meningitis*—2 cases. *Facial paralysis*—1 case. *Excessive fever without complication*—10 cases. *Septicemia*—3. *Involvement of liver*—1 case. *Multiple arthritis*—7 patients. *Lungs and pleura*—9 presented complications of these organs. *Pleurisy*—1 patient. *Lobar pneumonia*—1 case. *Secondary eruption*—2 cases. *Scarlet fever and measles*—2 cases. *Scarlet fever and malaria*—1 case. *Secondary attack*—1 case. *Scarlet fever and wounds*—3 patients. *Unusual onset* in 3 cases. *Heredity*—Nothing was especially marked except alcoholism in one or both parents in about one third of the cases. *Personal history*—Marked rachitis existed in a large number of patients.

Sterilization of Milk as related to Intestinal Putrefaction.—Angelo Volpe¹⁰ concludes, after a long series of experiments, that by sterilization milk is so much changed in its nature as to interfere with its digestibility. When non-sterilized milk is used in alimentation, the total amount of sulphur eliminated in the urine is increased, but so also is the sulphur belonging to the ethers, so that the action of the bacteria contained does not seem to be prevented; assimilation is, however, more complete. When milk is sterilized at 100° C., the putrefactive processes diminish, it is true, since the amount of sulphuric ethers is lowered, but the total amount of sulphur is lessened, which signifies that not all the albumin introduced in the milk has been assimilated. We must bear in mind in the feeding of children that the temperature of milk is not unimportant, since the digestibility and assimilability are impaired, and what is gained on the one hand by a diminution in the number of the bacteria is lost in the total effect of alimentation, only a portion of the milk being utilized, while the rest remains in the intestines, this residue of undigested substances being a fruitful source of putrefactions which are anything but harmless.

Tonsillar Ring, The.—Derrick T. Vail¹¹ says that the tonsillar ring, so-called by noted foreign specialists, consists of at least seven distinct masses of lymphoid tissue arranged in an annular manner in the oro- and naso-pharynx. Enlargement of the lower part, or "lingual tonsils," causes a sensation of lump in the throat, early voice-fag, barking cough at puberty, constant desire to clear the voice by hemming and hawking without raising anything, relief of symptoms during meal time, spasmodic asthma, globus hystericus, fears of cancer in the

throat, vague distress in the throat, blood-stained sputum. Usually only a single one of these symptoms predominates.

Tuberculous Peritonitis, Case Healed by Laparotomy.—Stamm¹⁸ operated upon a girl 9 years old whose abdomen measured 55 centimetres and whose lungs were normal. A litre and a half of clear serum was evacuated; the peritoneum was studded with tubercles, the omentum with hazelnut-sized yellowish masses. An excised piece of peritoneum showed the typical structure of tubercle. The abdominal wound healed by first intention, and the child was discharged in a blooming condition. Two years later she was apparently perfectly well.

Tubercular Poison.—Angelo Maffucci¹⁹ thus sums up his conclusions in regard to the transmission of the tubercular poison from parents to child: 1. The tubercular poison is more often transmitted than the bacillus. 2. This poison may be transmitted in the ovum, spermatozoön, or through the placenta. 3. The children of two tuberculous parents are most affected by the tubercular intoxication. 4. Embryonal intoxication is manifested as defective development, abortion, premature birth, death, and cachexia in extrauterine life. 5. The embryonal tissues not only oppose the development of the tubercle bacillus, but may even destroy it, and in so doing generate a toxic product which becomes fixed in the embryonal tissues. 6. Chicks born from infected eggs possess a greater resistance to the tubercle bacillus, and may even destroy it—a power not possessed by the chick or the adult fowl in which the tubercle bacillus is injected. 7. The children of tuberculous parents are not more susceptible to the tuberculous virus than those of healthy parents, and the greater frequency of tuberculosis among them must be laid to the charge of familiar contact, and to the possibility of a germ having been transmitted from embryonal life, and not to a specific hereditary disposition. 8. Hereditary tubercular intoxication can be largely overcome under good hygienic conditions. 9. The whole problem of these experimental researches shows that the prophylaxis and cure of hereditary tuberculosis is solved by rigorously enforced hygienic measures, by removing the child from the infected surroundings and placing it under the most advantageous conditions for health.

Vagus Nerve, The, in relation to the Malignant Forms and to the Complications of Measles.—Emilio Cioffi²⁰ reaches the following conclusions: 1. The statistics of mortality from measles often give such a high per cent as by no means to bear out the usual opinion as to the innocuous nature of the disease. 2. Among the most malignant and most insidious forms is that characterized by a livid and scanty eruption, which disappears to return later, with fever which is not always high, with slight bronchial phenomena, with dulling of the sensorium, and pronounced tachycardia (absence of the characteristics of measles). 3. A second form of the malignant type of the disease is characterized by marked general eruption, high fever (40° to 41.5° C.—104° to 106.7° F.), convul-

sions, cyanosis of the face, attacks of dyspnea, mania, tachycardia (exaggeration of the characteristic symptoms). 4. Because of the severity of the infection, death in these cases is due to profound toxemia acting upon the thermogenetic centres, disturbing the equilibrium (hyperpyrexia), and upon the cardiac inhibitory innervation. The result is first excitation and then paralysis of the vagus. 5. The pathogenic mechanism of very acute forms of the pneumonia of measles, or suffocating catarrh (first type of Hutinel), should be referred to strong stimulation of the excito-motor fibres of the vagus in the respiratory mechanism. This theory is substantiated by the fact that at the autopsy the lesions do not point to mechanical asphyxia. 6. When, in the slow form of pulmonitis (second type of Hutinel), the cough suddenly disappears, we must bear in mind the possibility of pulmonary collapse. The sensory paralysis of the mucous membrane of the respiratory tract (disappearance of cough), and the paralysis of the bronchial muscle fibres, facilitate the penetration of extraneous substances and of bacteria, and the pulmonary tissue falls a prey to a multitude of micro-organisms. 7. Both the first and second types of pulmonary affection depend upon changes in the vagus due to the influence of bacterial poisons. 8. A barking cough and pseudo-croup in measles should, judging from the anatomy and physiology of the larynx, be referred to a nervous influence (vagus). 9. The frequency of pulmonary tuberculosis in measles must be explained by increased vulnerability of the pulmonary tissue, from trophic changes following nervous alterations dependent on the vagus, which render it more susceptible to the pathogenic bacillus. 10. Vomiting and diarrhea, nausea and a feeling of satiety, are to be explained by special modifications of the motor and sensory fibres of the vagus (increased movements of stomach and intestines, disturbances in the sense of hunger). 11. Symptoms referable to the kidneys—anuria, oliguria, edema with or without albuminuria—should be classified with nervous albuminurias due to stimulation of the branches of the vagus to the kidneys, upon which organ an influence of a trophic nature is doubtless exercised. 12. In infancy the development of the inhibitory centres is arrested, the excitability of the peripheric nerves is extreme. The infantile organism has a pronounced reflex mechanism. These pathological conditions being admitted, a stimulation of the vagus and of its meningeal branches produced by the fever and by the *virus morbillosus* easily becomes a chief factor in the production of the convulsions which so frequently occur in the disease. An abnormal and prolonged stimulation may even induce fatal eclampsia. 13. The frequency of painful purulent otitis, which is present in nearly half the cases, is one of the most convincing arguments in favor of the special elective action of the *virus morbillosus* on the vagus. 14. The marked influence of infective diseases upon the nervous system having been experimentally demonstrated, and the modifications of the organism being admitted,

we may assert that the stimulation of the meningeal fibres of the vagus, and even more of the centre, is at least a predisposing cause of simple or tubercular meningeal inflammation.

Vesical Calculi in Children.—F. D. Smythe²¹ reports four cases under 5 years of age. Among his conclusions are the following: Stone is neither climatic nor dietetic in origin, but under favorable conditions climate and diet are factors in its development. The uric acid varieties do not predominate in children to the extent one would infer from the literature on the subject. The usual symptoms are greatly aggravated in children; and the enlargement of extra-genitals, priapism, and prolapsus recti are peculiarly suggestive of the presence of stone and should always insure thorough examination for the same. The value of rectal and bimanual examination cannot too strongly be urged in conducting examination of children for stone. The diagnostic value of the searcher is well known. The rectal bag is not only unnecessary in operating upon children, but it is a hindrance and not without its dangers. The bladder, when badly diseased, should be left open for drainage and rest. Bladder walls that are healthy should be closed by the Lembert suture, animal material, and dropped back into cavity with no provision for drainage. The treatment is essentially surgical—suprapubic operation the ideal one. The modern method of its performance bids fair to shelve the usual and heretofore more popular procedure, litholapaxy. The retention of the catheter in children is found to be wholly unnecessary, while it adds much to the patient's discomfort, increasing the difficulty of promoting quietude. Females are almost exempt from bladder stone, due to position, patulency and dilatability of urethra.

Vomiting in Children.—A. Nil Filatow²² says that the diseases in which simple vomiting is usual may be divided into two groups—those in which the onset is accompanied by a considerable rise in temperature, and those in which there is almost complete apyrexia. In febrile diseases, from the point of view of diagnosis, vomiting has a significance varying according to the age of the patient. In little children of from 2 to 3 years it is of no importance in diagnosis, for in these we find vomiting in every illness, accompanied by sharp rise in temperature, say 103° or 104° F. In older children vomiting is noted at the beginning of certain infectious diseases—scarlet fever, small-pox, erysipelas, and, among localized diseases, peritonitis. In other febrile diseases it is only exceptionally encountered at the onset. In these cases vomiting should attract attention only when it occurs after fasting, when the vomitus is glairy and contains bile, and has not been preceded by the ingestion of such drugs as antipyrin, or salicylic acid or one of its salts.

Vomiting in the afebrile state or with a slight elevation of temperature is met in widely differing diseases. After a cough it is noted in pertussis, in dry pharyngitis with hyperesthetic mucous membrane, in chronic hyperplasia and cheesy

degeneration of the bronchial glands, in the bronchial catarrh occurring in pertussis, in bronchiectasis with abundant secretion, in empyema where the pus seeks a way out through the bronchus. Vomiting not accompanied by cough or fever is due to a direct or reflex irritation of the mucous membrane of the stomach. Direct irritation from irritants, undigested food, or emetics gives vomiting which is neither accompanied nor followed by any disturbance. Such vomiting may also be the symptoms of local disease, such as dyspepsia or gastric catarrh. *Reflex vomiting* is caused by irritation of the digestive canal, the abdominal wall, or the brain. Abdominal pain of nervous or of inflammatory origin, obstinate constipation, especially that following obstruction of the bowels, and intestinal worms, may all occasion vomiting. Vomiting of cerebral origin follows certain acute or chronic diseases of the brain and of the meninges. A constant characteristic of this variety is its obstinacy, which resists all treatment, whether dietetic or medicinal. The tongue remains clean, the breath is not bad, and the dejections are normal; there exists a tendency to constipation without there being any meteorism or pain due to pressure on the epigastrium. There is severe headache, sleepiness, and irregular, slow pulse. Only the ensemble of these symptoms has any real value for diagnosis. There is vomiting which follows the subcutaneous injection of apomorphine, uremic vomiting of acute and chronic nephritis, and vomiting following etherization. Leyden describes vomiting due to the irritation of exhaustion, which is often followed by convulsive hiccough. Nervous vomiting in convalescence from diphtheria probably depends upon paralysis of the vagus nerve. Uncontrollable vomiting is observed following chlorosis and general nervousness. We must distinguish from vomiting the throwing up of food and drink which has not reached the stomach, as occurs in stenosis of the esophagus and in paralysis of the soft palate.

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THE AMERICAN
JOURNAL OF OBSTETRICS
AND
DISEASES OF WOMEN AND CHILDREN.

VOL. XLI.

JUNE, 1900.

No. 6.

ORIGINAL COMMUNICATIONS.

COMMENTS ON THE TOXEMIA OF PREGNANCY AND ON THE
OPERATIVE TREATMENT OF UTERINE
DISPLACEMENTS.¹

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IN analyzing my clinical material during the past twenty years, there are two topics which impress me specifically and on which I purpose dwelling briefly, stating my personal convictions, even though I am conscious of the fact that in regard to at least one my views are considerably at variance with those held by many colleagues.

THE TOXEMIA OF PREGNANCY.

The first topic relates to obstetrics and is selected because, great as have been the advances in this branch of medicine, as regards this specific subject we are still working very much in the dark and the mortality rate is entirely too high. I have in mind that form of toxemia of pregnancy which manifests

¹ Read by title before the American Gynecological Society, at Washington, D. C., May, 1900.

itself in eclampsia, and I hope to show that through greater attention to *prophylaxis* we may better our results to a considerable extent. The term toxemia is selected advisedly because of the fact that we are still in the dark as to the exact etiological factor or factors, our present belief being that the toxemia is a combination of waste products emanating not alone from the kidneys but from the liver and the intestinal canal as well. The old term *uremia* must be banished from our minds and from our text books, although for the present, since in all probability the kidneys are chiefly at fault, for descriptive purposes the words "urinary toxemia" may be retained. That we are dealing with a mixed toxemia is amply proved by the fact that an eliminative treatment aimed, not alone at the kidneys, but also at the liver and at the intestinal canal, yields most brilliant results.

My experience with these desperate cases has proved to my own satisfaction the following deductions:

It is a grave error to test the urine of a gravid woman for albumin alone after a perfunctory fashion. The mere presence or absence of albumin means nothing. As I analyze my cases I find that, as a rule, toxemia is least likely to occur in those subjects in whom albumin in moderate amount exists, whilst, on the other hand, virulent toxemia frequently occurs in subjects in whose urine albumin is absent, or present in trifling amount alone. No man's duty, therefore, can be considered as complete unless, at regular intervals, the amount of urine passed in twenty-four hours is measured and an accurate estimate of the amount of urea is obtained from this total amount, taking into rigid account the customary diet of the woman and the amount of fluid she ingests.

Women subject to nephritis, should they conceive, must be watched with extraordinary solicitude. Where, under recognized dietetic measures; where, notwithstanding regulation of the emunctories, the urea diminishes, as also the amount of urine secreted, the question of arresting the gestation deserves the most serious consideration.

In cases where albumin does not exist or only in traces, and yet there is determined a steady decrease in the amount of urea excreted, expectancy may be fatal. The positive rule should be the evacuation of the uterus as speedily as may be, with due regard to the integrity of the maternal parts.

Eclampsia being imminent or present, our sheet anchors of treatment should be rapid evacuation of the uterus, as a rule

venesection, and protracted irrigation of the colon with hot saline solution. Morphia is contraindicated because it defeats the very object in view, paralyzing excretion both from the bowels and the kidneys, a paralysis, so to speak, of the latter being already in existence and responsible largely for the deadly symptomatology present. Veratrum, although, if the preparation be reliable, it will lower arterial tension, in my experience in no wise controls the toxemic manifestations of eclampsia, for I have seen instances where, although the pulse rate was held at 40, the crises recurred with severity. Arterial tension may be better lowered by means of large doses of nitroglycerin (one-tenth of a grain hypodermatically) and by venesection. Whilst under chloroform the crises may be held in check, the subject cannot be kept anesthetized indefinitely, and, besides, the danger of cardiac paralysis is always imminent. I have seen the women become eclamptic over and over again as soon as the effect of the chloroform has passed away. Ether, from its very tendency to affect even healthy kidneys after an untoward fashion, is distinctively contraindicated in eclampsia.

With these premises as a basis, from a fairly large number of instances of toxemia seen in consultation I have selected the following as types to prove that to inattention to the rules laid down was fairly chargeable the fatal issue; or that this issue might have been avoided by systematic care given the woman along what, in my opinion, constitutes the desirable line; and then again that, unfortunately for our science, notwithstanding every precaution, sometimes our best efforts are futile.

CASE I.—A multipara, the subject of chronic interstitial nephritis, was seen by me in eclampsia at the seventh month of uterine gestation. The urine had been examined after a perfunctory fashion—that is to say, on two occasions traces of albumin had been determined. Urea had never been tested for, and the amount of urine passed in the twenty-four hours was unknown. For two weeks previous to my being summoned the woman had complained of severe cephalalgia, dimness of vision, and nausea. Veratrum and nitroglycerin were administered, but beyond this nothing in the therapeutic line had suggested itself to the attendant—a gentleman, by the way, in active practice for over a quarter of a century. Suddenly the woman had an eclamptic seizure, and I was sent for. Before my arrival opium was administered, and pilocarpine as well.

Under chloroform anesthesia, in thirty minutes I emptied the uterus of a living child, which died, however, within six hours. After the uterus had been emptied I allowed the woman to bleed freely and thereby abated the high tension of the pulse. Notwithstanding these measures the woman had crisis after crisis, and, never regaining consciousness, died in coma.

The justifiable comment on this case is that had the urine been investigated after the careful fashion I have laid stress upon, and had judgment ruled instead of drugs, the uterus would have been evacuated at an early stage of gestation, an eliminative treatment would have been instituted, and in all probability the woman would have been saved.

CASE II.—A multipara, the subject of chronic parenchymatous nephritis, was most carefully watched by her attendants, the urine being examined at frequent intervals, and the urea as well as the amount of urine excreted was kept within fairly normal limits up to the seventh month of uterine gestation. It was important, from the standpoint of inheritance of considerable property, that the woman should be delivered of a living child. Symptoms suggestive of impending toxemia showed themselves about this date, but, notwithstanding, the labor was not terminated. As a result, of a sudden the woman had an eclamptic seizure; chloroform was administered, but on emergence the crises returned. I was sent for, and within half an hour I delivered the woman and allowed her to bleed freely from the uterus. In addition, since the tension of the pulse was greatly exaggerated, she was bled to the extent of about ten ounces from the arm. High colon irrigation was instituted. Notwithstanding these measures, the woman had attack after attack, and in the midst of one died.

In this case the attendant was justified in allowing pregnancy to progress up to the time when symptoms suggestive of beginning toxemia manifested themselves. Then was the time for interference of active nature. Expectancy was allowed to rule until the toxemia became virulent, and then, although eliminative treatment was instituted, the woman died. Subjects of chronic nephritis, especially where the type is the parenchymatous, should not be allowed to conceive, and when this occurs the gestation should be interrupted.

CASE III.—A primipara, gravid about six months. The urine had been most carefully and systematically watched and was always normal. Of a sudden, without premonitory

symptoms, she had an eclamptic seizure. Chloroform controlled the seizure temporarily, and on catheterization no urine was secured. For ten hours practically continuous colon irrigation was practised, and the cervical canal was packed with gauze as a preparatory measure to evacuation of the uterus. The crises occurred with greater frequency; the uterus was emptied with ease after the lapse of twelve hours; the tension of the pulse being exceedingly high, venesection was practised and veratrum was given until the pulse rate was below 50; but, notwithstanding, the woman passed into coma and died. Only seven ounces of urine were secured from the time of the first seizure until the end.

This case is a type which as yet we are unable to grapple with. Of exceptionally rare occurrence, when it presents itself our therapeutics and our surgery are of no avail against the surcharging of the system with the mixed toxic elements.

These cases are given as typical of that class which are either absolutely fatal or else where, through injudicious expectancy, interference has been postponed until toxemia becomes active, when rarely, very rarely, is therapeutics of avail. I could record scores of instances seen by me on the occurrence of the premonitory symptoms of toxemia and where the uterus has been promptly emptied with favorable result. To exemplify this side of the picture I will simply quote the following.

CASE III.—A primipara at the seventh month of pregnancy, the urine containing fully 20 per cent of albumin for weeks previously, but the urea remaining at normal bounds. Suddenly she began to complain of intense headache, of spots before the eyes, and became apathetic. Examination of the urine revealed the same amount of albumin, but the urea had diminished by one-third. I was sent for, and in twenty minutes had emptied the uterus of a live child. Under high colon irrigation the untoward symptoms disappeared, the urea rose to normal, and the woman made an uninterrupted recovery.

CASE IV.—A multipara, the subject of chronic interstitial nephritis, developed the symptoms of impending uremia at the third month of utero-gestation. Notwithstanding milk diet and irrigation of the colon, the urea dropped to 50 per cent below the norm. Precedent gauze tamponade of the cervical canal for twenty-four hours enabled me easily to empty the uterus. The colon irrigations were continued, and at the expiration of forty-eight hours the cephalalgia disappeared and the urea rose to the normal.

CASE V.—A multipara at the eighth and a half month of pregnancy developed cephalalgia and visual disturbances. She was highly edematous; the urine contained nearly 50 per cent of albumin, the urea was 30 per cent below the norm. Under chloroform anesthesia I delivered her within half an hour of a fifteen and one-half pound living child. Within one week the edema had practically disappeared and the urine was free from albumin, the urea being at the normal point.

These cases testify to the great aid toward securing the proper therapeusis yielded by the systematic examination of the urine for urea, instead of trusting to the presence or absence of albumin; and in the face of these and many other cases, compared with those before related, I have reached certain definite conclusions which may in brief be stated as follows:

The only justifiable treatment of toxemia is the surgical before the active manifestations set in. In the presence of these premonitory symptoms I have seen the opium treatment tested, and it has failed. I have witnessed the administration of veratrum until the pulse rate was held at 40, and it too has failed. I have seen the eliminative treatment instituted after the development of active toxemia, and it also has failed. What wonder, then, that there remains for me but one course of action, and it is this: Whenever the subject of Bright's conceives, just so long as the amount of urea remains at the norm we are justified in allowing the gestation to continue. Whenever, under recognized dietetic measures, the urea drops below the normal, the uterus should be emptied after as speedy a fashion as the urgency of the symptoms allows. Where time permits, the packing of the cervical canal with gauze is the step precedent to the manual evacuation of the uterus. In the face of the symptoms of active toxemia, the uterus may, as a rule, be emptied within thirty minutes; and this accomplished, the mortality rate of toxemia is greatly lowered.

Whenever, at any stage of gestation, the healthy subject—healthy as regards the state of the kidneys—gives evidence of kidney insufficiency which does not in short order yield to the routine measures, it is preferable to trust to evacuation of the uterus than to drugs. Temporizing will, in the vast proportion of cases, eventuate in active toxemia, when interference of any nature may avail naught. I am aware that these conclusions are opposed by many whose names carry weight, but every man must base his deductions on personal experience, and

mine has been of the type to justify those I have stated. Certainly, as I consider my clinical material during the past twenty years, a larger proportion of lives have been thus saved than it has been possible to secure by any and by every other method of treatment. When it becomes routine practice to test the urine for urea and to place less dependence on the presence or the absence of albumin, I have little doubt but that all observers will agree with me.

THE OPERATIVE TREATMENT OF RETRODISPLACEMENTS OF THE UTERUS.

This is the next topic which stands in bold relief from my survey of my clinical material, and in regard to which I have formulated certain conclusions not at all in accord with those of many others, if I am to judge by the large number of cases recorded as operated upon by many colleagues.

The first conclusion I reach from the analysis of my material is that uncomplicated retrodisplacement of the uterus is of exceeding rarity. Under complications I refer to endometritis, laceration of the cervix, pelvic peritonitis, tumors of the uterus—in particular, fibroids. The result of these complications is that the uterus either *sinks down* from increased weight, or is *held down* by adhesions, or is *pushed down*—again from increased weight. In case of certain of these complications, if relieved by the proper therapeutics, it becomes unnecessary to resort to any operation *per se* for the cure of the displacement, whilst other complications demand therapeutics of a far different type than that yielded by any of the proposed operations for the cure of the displacement. The factor above all which attracts attention in cases of uncomplicated uterine displacement is the *sinking downward* of the uterus. The mere falling backward (or the version) of itself does not cause symptom and therefore does not result in the woman consulting the gynecologist. In accordance with the amount of downward sagging depends the amount of symptom; and this deduction is of the greatest possible moment, as will be seen later on in my argument, in the selection of operative measures applicable to the cure of the uncomplicated displacement.

Prior to 1890, I, in common with most others, had recourse to either the vaginal tamponade or to pessaries in case of uncomplicated displacement. Both these measures, it soon became apparent to me, were but palliatives, and in the long run it seemed to me that through distension of the vagina by the

tampon the very condition giving rise to symptom—the downward sagging of the uterus—became intensified; whilst, in the case of the pessary, after a while it became necessary to use larger and larger sizes in order to maintain the uterus at a higher level and thus correct the downward sagging. Such being my experience, I began to look around for an operation which promised more than palliation, if not absolute cure of the symptoms; for I may as well state just here that I never saw an instance of the kind under consideration cured either by tampon or by pessary. The woman had her choice of being tamponed or wearing a pessary *ad infinitum*, or else running the risk associated with operative measures. Be it understood that I stand squarely on record that many a case of uterine displacement is susceptible of cure through curettage, in case of endometritis, or through properly performed repair of cervical lesion together with curettage. True enough, the uterus remains backward, but, the weight of the organ having been lessened, the downward sagging in so far ceases and thence relief of the symptom.

For the very small minority of posterior uterine displacements calling for operation simply to secure this replacement of the uterus at fairly normal level in the pelvis, it became necessary to find an operation which would fulfil the demands of the problem, and the first I attempted was that known as Alexander's, or the shortening of the round ligaments. I very shortly discarded this operation for the following reasons: I found that oftentimes the round ligaments, if sought at the pubic spine, were thin, would not stand the requisite traction, or else broke off, rendering necessary the opening up of the inguinal canal in order to properly secure the ligaments. Now, this inguinal canal is the very chief of all places where Nature allows hernia to occur, for the cure of which surgeons for ages have been devising methods. It appeared to me, therefore, highly illogical to subject my patients to the liability of hernia of a type so difficult to cure, and not alone to one hernia, but to two. Later reports have justified me in this view, for we are daily hearing of hernia of the inguinal canal following Alexander's operation—an operation, be it remembered, only applicable to uncomplicated uterine displacement, a condition which is in no wise of grave import to the woman, and which may for a long time, if she desire, be relieved by tampon or by pessary. Further still, it appeared to me that whilst Alexander's operation, if successful, corrected the version of the uterus, it did not lift the uterus to a higher

level, and in so far must needs fall far short of the indication for any operation. Again, I made it a habit in my abdominal work to take account of the round ligaments, and I became satisfied that usually they were only embryonic affairs at best and utterly unsuited for traction purposes. Further still, I found that uterine displacement frequently gave rise to symptom because of the associated ovarian prolapse, and this condition could not at all be relieved by shortening of the round ligaments any more than this operation could correct uterine sagging.

Alexander's operation not appealing to me, therefore, as an operation depending on logical sequence, I turned my attention to the methods suggested of shortening the round ligaments either *per abdomen* or *per vaginam*. The intra-abdominal shortening of the round ligaments I reject for the reason that, the abdominal cavity having been invaded, there exists a method of treating the uterine displacement far superior, which I shall shortly refer to; and, furthermore, it seemed to me that the twisting of the round ligaments on themselves or their duplication necessarily distorted the position of the Fallopian tubes—an item of no small moment as concerned the question of impregnation. Shortening the round ligaments by the vagina did not appeal to me for a similar reason, and furthermore because the essential technique weakened the anterior pelvic diaphragm. Remembering the difficulty of curing cystocele by operative measures, it appeared to me injudicious to subject the woman to the possibility of cystocele occurring through resort to operative measure having the end in view of shortening the round ligaments and, as noted above, distorting the position of the Fallopian tubes.

Vaginal fixation of the uterus never appeared to me to have the slightest logical basis. At the outset such operation converts a movable retrodisplaced uterus into a fixed anteriorly displaced. At the best it may correct the backward version, but it cannot touch the essential thing, which is the *downward sagging*. Then, again, it is open to the same objection as vaginal shortening of the round ligaments, that is to say, it weakens the anterior pelvic diaphragm.

There remained, then, as the method of choice for me at the outset, hysterorrhaphy and later suspension of the uterus by the parietal peritoneum. I grant that both these methods fall far short of the ideal, but in that one or the other accomplishes the chief thing aimed at—the lifting of the uterus to a higher

level—without the objections which the methods I have just criticised carried, I must consider the latter (suspension) the method of selection until further research gives me something as effective and yet freer from ground for criticism, for I grant that both hysterorrhaphy and suspension are open to criticism.

The only possible objection to uterine suspension is that it subjects the woman to the risk of hernia; and even granting this, it appears to me preferable that she should have one hernia in the mid-line than that she should have a hernia at each inguinal canal. Therefore, compared with Alexander's operation, the choice of method is certainly in favor of suspension. Furthermore, suspension carries with it the no mean advantage that at one and the same time the condition of the tubes and the ovaries may be investigated—something which turned out as requisite in no small proportion of the instances in which I have advisedly opened the abdomen for the simple purpose of attempting the cure of a movable retrodisplaced uterus. Over and over again have I been able to excise parts of ovaries or to untwist Fallopian tubes—conditions which later on, in all probability, would have necessitated opening the abdomen. Still further, in the event of that frequent complication—ovarian prolapse—at one and the same time, this may be corrected by shortening the ovarian ligament. To state the question in the briefest possible compass, the abdomen once opened for the purpose of uterine suspension, not alone may the uterus be placed at a fairly normal position in the pelvis, but certain undiscovered incipient diseases of the tubes or the ovaries may at one and the same time be rectified.

The technique followed by me for the past five years is to make a small incision just above the pubes; through this incision the uterus may be readily brought forward by means of two fingers and the condition of the tubes and the ovaries may be investigated. The suture I am using nowadays is chromic catgut, and this is passed through the parietal peritoneum and thence through the body of the uterus *anterior* to the fundus, and then again through the parietal peritoneum. It will be noticed that I pass the suture anteriorly to the fundus, and this for the reason that, according to my light, it is faulty to pass it posteriorly, since it seems evident on the face that thus we are placing the uterus in the very position whence on the occurrence of pregnancy this would be likely to become interfered with, whilst the suture placed anteriorly cannot in any way interfere with the rising of the uterus. If

the cases of dystocia occurring after uterine suspension were carefully investigated, it is my belief it would be found that the suspension was after the faulty type. It will be noticed that I reject the buried suture of silkworm gut, and for the reason that thus the uterus becomes fixed—something which obviously we should aim at avoiding. After the technique described a band of parietal peritoneum suspends the uterus at a higher level in the pelvis, the normal sphere of motion being entirely uninterfered with. I have had the opportunity on two occasions of reopening women in whom at previous periods the uterus had been suspended—once by myself and once by a colleague—and in both I found the uterus hanging by a band of parietal peritoneum about the thickness of a crow quill, able to move upward or laterally or downward according to the demands of the adjacent organs, the bladder and rectum and intestines.

This operation, then, fulfils for me the indications of the condition for the relief of which the woman consults me. Be it understood that it is rarely called for. I have performed it fifty to sixty times, and it has only been resorted to after the woman has been given to understand that she may, if she chooses, elect the wearing of a pessary *ad infinitum*. Furthermore, if our technique is aseptic, we may assure the woman that she runs but slight risk of hernia, and, if I may draw any deduction from a half-dozen instances, that pregnancy will not be interfered with.

36 EAST FIFTY-EIGHTH STREET.

CARCINOMA OF THE RECTO-VAGINAL SEPTUM.¹

BY

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(With five illustrations.)

Frequency.—Friedl had found in 1896 about 130 cases of primary cancer of the vagina. From 1892 to 1893, of 5,341 gynecological cases treated in the Vienna Institution, there were 15 cases of vaginal carcinoma—0.22 per cent. But Martin found 4 cases only in 5,000 women—0.08 per cent. Again,

¹ Read before the American Gynecological Society, at Washington, D.C., May 2, 1900.

Vauvra, of Prague, in 8,981 patients found 38 cases of vaginal cancer—0.42 per cent. Of all cancer cases Bergel found in 8,287 deaths from cancer 14 primary vaginal carcinomata—0.16 per cent. The highest ratio is given by Meyer—8 cases of vaginal cancer in 266 cases of cancer, or 3 per cent. In Vienna cancer of the vagina occurs once while cancer of the uterus is found 68 times. In Prague the ratio is 1 to 38.

Location.—My two cases followed the rule in that the growth appeared on the posterior wall. Of Olshausen's 18 cases, in 13 the cancer affected the posterior wall. From its point of origin the cancer may extend backward to implicate the rectum, upward to invade the uterus, or may become implanted upon some other part of the vagina. In my two cases the rectum was involved.

In case Beckie S. the cancer completely surrounded the rectum and had ulcerated so as to produce hemorrhages in the stools as well as partial obstruction of the gut. It also appeared upon the posterior vaginal wall for one and a half inches. I have no means of telling where the growth began, but believe the vagina was first involved.

In case Pf. there was no evidence of either obstruction or ulceration in the rectum.

Site of Recurrence.—As a rule the growth recurs locally. However, Laurenstein reports a case in which the growth recurred in the uterus three and a half years after the vaginal cancer had been extirpated. In neither of my cases did the disease recur locally, either in the small portion of vagina which I left or in the artificial anus, but was first noticed at a higher point in the rectum. In case Pf. the budding cancer had worked its way down from above until it escaped from the rectum. But in both cases the recurrence was in the pelvis, posterior to the gut, but soon invading the bowel and producing obstruction.

In case S. the type was nodular infiltration, while in case Pf. it was papillomatous.

Operative Procedures.—The operation which has been commonly employed is Olshausen's. This is essentially a blunt dissection of the vagina from the rectum. It has been somewhat modified by Friedl, Torggler, and very essentially by Mackenrodt. All departures from Olshausen's operation, except Mackenrodt's, have been slight and in technique rather than in principle. Mackenrodt embodies in his operation of "igni-extirpation" the principles laid down by Byrne, and

seeks by means of heat to close the mouths of the absorbents, while by the same means bleeding is controlled and the tissues removed well outside the growth. But his operation is most bloody and difficult.

The attempt of Olshausen to dissect the cancerous tissue from the gut has been a failure, so far as ultimate results are concerned, for 90 per cent of the cases recur within the year. What will be the fate of Mackenrodt's cases I can only surmise. As recurrence usually takes place in the field of operation and not by metastasis, one or all of the following conclusions can be deduced: that (a) the growth reappears because some of the cancer has been left behind, or (b) because tissue liable to cancerous degeneration has been left, or (c) because the germ of cancer has been implanted upon the raw surfaces in the operation. In order to escape each and all of these contingencies we must remove sufficient tissue and in such a way as blocks the absorbents. This may be accomplished by deeply charring the cancer site with the hot iron, and by some one of several procedures make a broad dissection. The objection to this in vaginal cancer, or vaginorectal cancer as it usually comes to us, is that a sufficient degree of burning will open into the gut, thus soiling the field of operation. Absorption of cancer cells may also be prevented by cutting off the blood supply of the operative field, for upon the arterial *vis-a-tergo* depends the circulation of both the venous and lymphatic systems. And if such a preliminary hemostasis will at the same time furnish a dry field in which to work, it will not only extend the area of possible dissection, but will also starve out all cells which may already have proceeded some distance from the site of the neoplasm. Believing that these requisites to a successful removal of primary vaginal cancer and of rectal cancer in woman could be met by ligating the internal iliac arteries and lesser trunks, I have twice operated under the guidance of these ideas. Unfortunately in both cases the vagina and rectum were both involved. Although both these cases recurred within the year, I am persuaded of the propriety of the operation applied. In no other way could the vagina and rectum be removed and an artificial anus established. The operation fills all the requirements except as to non-recurrence, and as yet we do not get our cases early enough to prevent that. It is as radical a piece of work as can be applied, and that recurrence so soon took place, while not discouraging us in our efforts, yet makes us some-

what sceptical of our ability to control this disease when situated here. But which of us will rest satisfied with what has been accomplished or cease his efforts? That the operation I present is essentially surgical I believe is established. The preliminary ligation of the iliacs for prostatic hypertrophy Bier has shown feasible, and others following me in this method of hemostasis in uterine cancer have also proved the safety of the operation. I have shown that not only can a broad dissection be made by this method, but provision made for an easy escape of feces. If the operation fails to improve the statistics of recurrence, I believe we must seek relief in some method other than one based upon accepted surgical principles.

Beckie S.; m.; æt. 31. *Cancer of Rectum and Vagina.*—Large cancerous nodule in recto-vaginal wall, completely surrounding the rectum, ulcerating anteriorly and protruding into the vagina. Lumen of gut about half an inch. The lower border of the growth is half an inch above the sphincter, its upper border one and a half inches above this. An ovarian cyst three inches in diameter on left side. Removal by abdomino-perineal method July 10, 1899. Died from intestinal obstruction due to recurrence April 13, 1900.

Pf.; m.; æt. 31. *Cancer of Vagina.*—An inch below the cervix, upon the posterior vaginal wall, is an elevated, papillary, carcinomatous nodule one and a quarter inches in diameter. It shows no evidence of a removal by curette three weeks ago. The rectal wall is firmly attached to the growth, but the mucous membrane of the rectum is movable. Removed by the abdomino-perineal method April 21, 1899. Convalescence complicated by facial erysipelas. Recurrence in August, 1899, high up in the rectum. Left colostomy by Bodine's method November 1, 1899. Died from recurrence April 25, 1900.

AN OPERATION FOR CARCINOMA OF THE VAGINA AND RECTUM.

It is needless to urge that whatever preparation is conducive to a good result should be applied to these cases before the operation; and before an audience such as this it will not be necessary to enumerate what measures should be adopted to strengthen the general physique, to increase the functions of the kidneys, and to produce local cleanliness.

I make an incision in the median line from the umbilicus to the pubes. Any adhesions which bind together the organs are separated. The ovarian vessels are ligated over the ureter at

the pelvic brim. kangaroo tendon ligatures being employed, and provisional ligatures are also applied at the cornua of the uterus. The round ligaments are then tied close to the pelvic

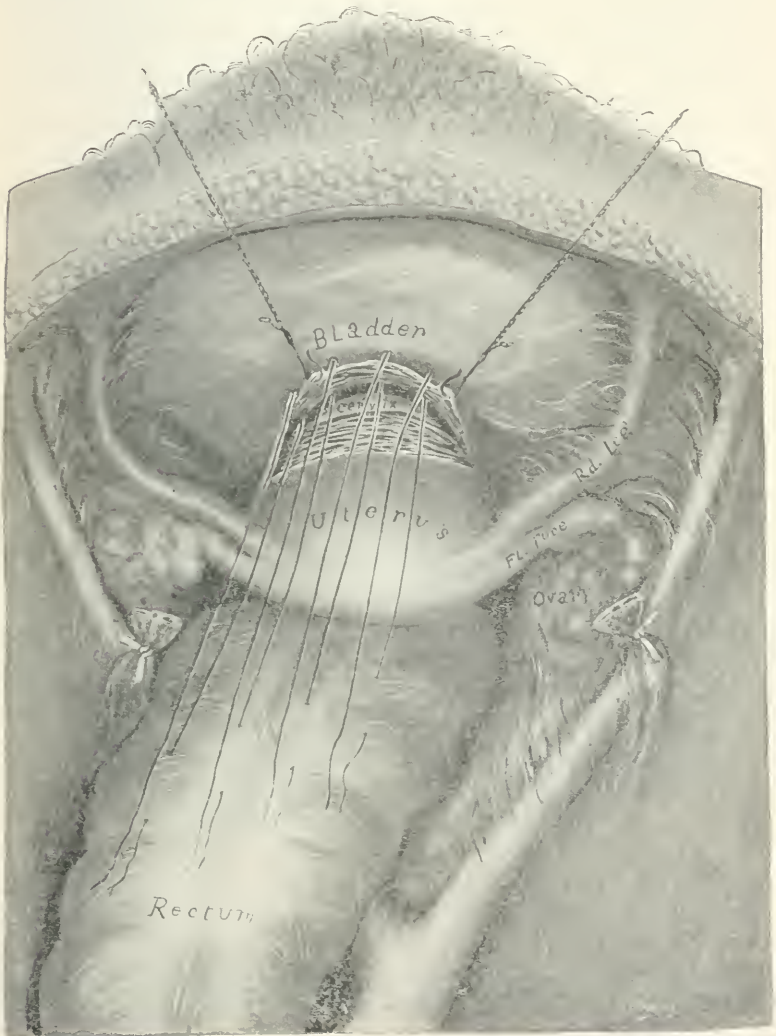


FIG. 1.—The abdominal operation. The vessels have been ligated and the uterus forced into retroversion. The anterior vaginal wall is incised and the sutures passed which unite the rectum to the vagina. (From a dissection)

brim. The broad ligaments are next split down to the level of the utero-vesical fold. As each broad ligament is split its folds separate and the iliac vessels and the ureter come into view. I take the ureter in forceps and lift it up from its bed,

and, making a blunt dissection with closed scissors, I free it from the fine bands which attach it to the iliac artery. The ureter is then held to one side by an assistant while the operator makes a track alongside the internal iliac artery for the passage of the aneurism needle. I usually tie the artery with kangaroo tendon, and prefer to do so just above its division into its branches. I now drop the uterus into the hollow of the sacrum and dissect the bladder from the cervix so as to enter the vagina just anterior to the cervix. The opening into the vagina is extended from side to side so as to be about the width

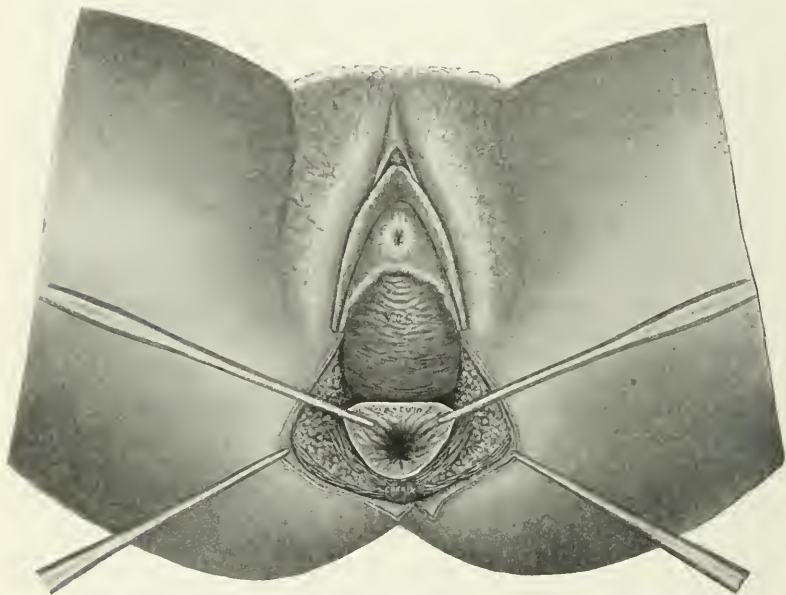


FIG. 2.—The perineal operation. (From a dissection.)

of the cervix, or one and a quarter inches. At a point on the anterior face of the rectum which can easily be approximated to this vaginal cut without too much tension, I introduce four silk sutures. These sutures are about one-quarter of an inch apart, and take a firm hold in the connective-tissue coat of the gut. The point on the gut which can readily be attached to the vagina is over the sacral promontory. In reality I have in my cases removed the entire rectum at its junction with the sigmoid flexure.

Each suture is then entered upon the vaginal face of the bladder and made to emerge upon the peritoneal face.

The sutures are now tied. I now dissect out the distribution

of the internal iliac arteries, so as to find the obturator branch on each side. This I ligate, so as to prevent its large anastomosis with the deep epigastric artery feeding those other branches which arise from the internal iliac artery. This is essential and, so far as I know, has been neglected by all those who have followed me in this line of work. I also tie the uterine and vesical arteries separately, so as to guard against secondary hemorrhage which might possibly follow a too early absorption of the kangaroo ligatures.

The abdomen is now closed. The patient is placed in



FIG. 3.—The perineal operation completed.

the lithotomy posture and any cancerous masses in the vagina or uterus are curetted away and burnt. Along each side of the vagina I make an incision extending from the first cut in the anterior vaginal wall straight down the vagina, through the nymphæ and labia. From the apex of the coccyx upward for about an inch I make a vertical incision. I now circle the vulva and anus by incisions which unite those which pass through the vagina to the coccygeal incision. Seizing the anus and vulval margins by traction forceps, I make a blunt dissection with scissors on each side of the rectum and vagina until I come to the point of union between the rectum and the

first transverse vaginal incision. This incision which I make passes through the levator ani fascia and muscle and a large mass of fat. It also extends posteriorly so as to sever a few fibres of the gluteus maximus muscle. In the course of this incision, as the large branches of the internal pudic artery are cut, blood pent up in them and in their anastomotics may escape and will indicate the mouths of the cut vessels.

The reason which prompts me to ligate other branches in the abdomen also indicates ligation here, viz., for the purpose



FIG. 4.—Appearance of vulva four months after operation. (From life.)

of guarding against a possible insecure ligation of one or the other internal iliac arteries. I now seize the anterior wall of the rectum just in front of the point where it is sutured to the vagina, and cut through it with scissors for a sufficient distance to enable me to grasp it with forceps. As I cut through the rectum I seize the bleeding vessels as they appear. The importance of fixing the rectum to the narrow strip of anterior vaginal wall now becomes strongly apparent; for, were this not done, the point at which the rectum should be amputated would not be

apparent, and as we cut the bowel it would perhaps recede beyond our grasp.

Having cut entirely through the bowel, it is rapidly removed down to the bone together with its mesentery and all the periproctæal tissues.

I now take the two edges of the coccygeal incision and unite them to the rectum, and apply three more sutures on each side. I next attach the skin upon each side to the edges of the vaginal cut until the skin is folded in upon the rectum. This will leave a



FIG. 5.—Recurrence in case Pf. (From life.)

small space between the anterior vaginal wall in front, the skin on the side, and the rectum internally, in which there is no suture. This opening passes directly into the pelvis behind and to one side of the rectum, and into this I pass a small quantity of iodoform gauze.

The last step of the operation is to suture the edges of the coccygeal cut. Of course at first there is incontinence of feces, but both patients upon whom I operated stated that they were able to retain fecal matter, unless very fluid, after

they had gained strength and were well on their feet. The operation is practically bloodless—an important factor in operating upon all cases of carcinoma.

Inasmuch as cancer is prone to spread by invasion of tissues having common sources of blood, this operation seeks the removal of all organs belonging to the vascular group in which the affected organ is placed. The internal iliac arteries supply the middle rectum, the vagina, the uterus, and, because of their large anastomoses with the ovarian arteries, the ovaries and tubes also. Therefore the ovarian and iliac arteries are ligated, and all the organs belonging to the internal iliac field of distribution are removed, the rectum, uterus, ovaries, tubes, and posterior two-thirds of the vagina. The vesico-vaginal strip which I leave is not liable to be the site of a recurrence, and, while partly supplied by the vesical arteries, it also receives sufficient blood from the external iliac. Such is the *anatomical* basis of the operation.

The operation has a *surgical* basis in the following principles:

(a) Preliminary and preventive hemostasis. By this not only is the field of operation rendered dry, but migration of cancer cells during the manipulation is prevented.

(b) Avoidance of injury to the cancerous field until hemostasis is secured and the cancer charred.

(c) Removal of all the organs in which recurrence is apt to take place, and from above downward.

(d) Establishment of an artificial anus near the site of the normal outlet.

121 EAST THIRTY-EIGHTH STREET.

THE TREATMENT OF FULL-TERM ECTOPIC GESTATION:

SHOULD NOT THE CHILD RECEIVE MORE CONSIDERATION? ¹

BY

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(With three illustrations.)

In discussing the treatment of ectopic gestation when the fetus is viable, three problems present themselves:

1. Is the viable ectopic fetus worth saving?

¹ Read by title before the American Gynecological Society, at Washington, D. C., May 3, 1900.

2. Do attempts to save the child seriously increase the mortality or morbidity of the mother?

3. What is the best procedure at the time of operation?

During the sixteen months from July, 1898, to November, 1899, it fell to the lot of the writer to operate, at the Sloane Maternity Hospital, upon three cases of full-term ectopic gestation, in two of which the fetus was dead at the time of operation; in one the child was alive and still lives, as do the three mothers.

Of course three cases are very few from which to draw general conclusions, but full-term ectopic gestation is so relatively uncommon that even so small a number, presenting as they do phases of the question both before and after the death of the fetus, may, it seems to me, furnish us some help at least in dealing with the subject in general and the above three questions in particular.

Is the viable ectopic fetus worth saving?—i.e., is it nearly enough perfect to warrant efforts to continue its existence?

If we were to judge from the three fetuses whose photographs are here presented, we should answer in the affirmative. Unfortunately the living ectopic child was apparently the least perfect of the three, yet this was the pet baby of the hospital and the pride of its mother. Fetuses Nos. 1 and 3 had been in jars of alcohol for a number of months before the photographs were taken, and were considerably shrivelled and compressed, but at the time of their delivery they weighed 4 pounds 12 ounces and 4 pounds 14 ounces, respectively, and careful examination failed to detect any malformation.

The living child showed a congenital dislocation of the left hip and a small umbilical hernia, the latter of which was nearly cured when the mother and babe left the hospital. The shape of the child's head was considerably compressed laterally when delivered, and although with growth and general development this asymmetry has greatly lessened, a certain amount of it still remains.

Although the child at delivery weighed only 4 pounds 3 ounces—*i.e.*, nine ounces less than the smaller of the other two—it was placed in an incubator, and, commencing with the second week, it showed a steady gain in weight and strength, until it left the hospital a vigorous, healthy child 3 months old, weighing 7 pounds 4 ounces. The accompanying photograph (Fig. 2) was taken when the child was $3\frac{1}{2}$ months old. At $5\frac{1}{2}$ months mother and child were reported as still doing well.

Admitting that it is unusual to find three ectopic fetuses as nearly perfect as these, the fact that these were three consecutive cases goes far toward proving that the ectopic fetus is worth saving, especially as we are all working under the general proposition that it is the duty of the physician and surgeon to save life.

*Do attempts to save the child seriously increase the mortality or morbidity of the mother?*¹ There are two phases of the subject of maternal mortality: (a) the immediate mortality, (b) the remote mortality, and they are each dependent upon the placenta. The immediate mortality is chiefly due to hemorrhage, the remote mortality to sepsis.

Operations in the interest of the child, if they increase maternal mortality, do so by hemorrhage in separating the placenta at the time of the operation, or by allowing infection of the placenta and sac when they cannot be safely removed at the time of delivery of the child.

Dunning² has attempted to prove, from the statistics of cases collected by Harris, Ayers, and himself, as reported during the three consecutive years 1894, 1895, 1896, that the percentage of maternal recoveries is greater when the operation is performed while the fetus is alive than when performed after fetal death. In 25 operations performed before fetal death during these three years, 15 mothers recovered, or 60 per cent, and in 33 operations performed after fetal death during the same period, only 19 recovered, or 57.5 per cent. Of course this number is too small from which to obtain positive conclusions, but yet it goes a long way in the direction toward proving that in the hands of competent operators the maternal mortality is at least not greatly increased if the child's life receive consideration; and if we grant an affirmative answer to the previous question, Is the viable ectopic fetus worth saving? we would in many cases be justified in trying to save it, even if Dunning's results had been reversed and only 57.5 per cent of mothers recovered when the operation was performed during fetal life, and 60 per cent recovered when performed after fetal death.

Maternal mortality when the operation is performed during

¹ It will be noticed that I leave out of consideration in this paper the treatment of ectopic gestation prior to the period of viability of the fetus, and only discuss cases occurring between the seventh month and full term.

² THE AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN, vol. xl., No. 5, 1899.

the viability of the fetus will always depend very largely upon the judgment and skill of the individual operator in his decision as to the treatment of the placenta—*i.e.*, whether it can be removed without great danger of fatal hemorrhage, or whether it is wiser to leave it to be removed or come away later.

Is *maternal morbidity* increased by operation during the life of the fetus rather than after fetal death? Of course, if the placenta and sac are so situated that the vascular supply can be ligated and the placenta and sac removed at the time of fetal delivery, the convalescence would usually be the shortest obtainable; and even in Case 2 here reported, where it was necessary to leave the placenta to come away later, the convalescence was neither longer nor more stormy than in Cases 1 and 3, where the fetus had died before operation, and in Case 3 the sinus persisted much longer than in Case 2.

We now come to the question: *What is the best procedure at the time of operation?*

Granting that the viable ectopic fetus is worth saving, and that the maternal mortality is not seriously increased by operation during the viability of the fetus rather than after fetal death, what general rules can we formulate to guide us in operating?

One of the first problems presented when meeting with a case of ectopic gestation which has advanced seven months or later, is: *When is the best time to operate*, (a) when fetus is alive, (b) when fetus is dead?

(a) *When Fetus is Alive.*—It is evident that any additional growth and development which can be given the fetus, all too heavily handicapped in its struggle for existence, is a thing to be desired, provided at the same time we are not seriously endangering the mother by so doing.

We have to admit that at the completion of the full period of gestation and during the spurious labor there is some danger of rupture of the gestation sac and fatal hemorrhage, as occurred in the case of Dr. T. H. Tomlinson, of Plainfield, N. J., reported to the writer by personal correspondence. (A patient with full-term ectopic gestation, after four days of "distress" in her abdomen, suddenly went into collapse, and died in a few hours, as the autopsy proved, of internal hemorrhage due to the rupture of the gestation sac.)

On studying his own cases and many of those recorded in the literature of the subject, the writer believes, however, that

if the patient is carefully watched, quiet is enjoined, and the gestation not allowed to advance beyond about eight and one-half months, the mother is but slightly endangered by waiting until that time.

It is also of advantage to the fetus that the gestation shall not advance to its completion, when the fetus is likely to perish, not so often by rupture of its sac as by interference with its placental circulation, as occurred in Case 1 here reported. Another disadvantage to the fetus in allowing the completion of the period of gestation is that during the later weeks absorption of the liquor amnii allows serious compression of the fetal skull.

We believe, then, that when the fetus is alive, with the mother under careful observation, and in the absence of unfavorable symptoms on her part, at about eight and one-half months of gestation is the most desirable time for operation in the interest of both mother and child.

(b) *When Fetus is Dead.*—When the fetus has just died, is it wiser to operate at once or wait?

It is the consensus of opinion that the object desired in all operations in advanced ectopic gestation—*i.e.*, the removal of the placenta and the gestation sac—is rendered much safer and greatly facilitated by waiting until the placental circulation has ceased and the thrombi have become firm.

For this reason we believe that when the fetus is dead, in the absence of unfavorable symptoms on the part of the mother, the best time to operate is from two to four weeks after fetal death.

We now come to the operation. While each case is a law unto itself, I believe that sufficient experience has accumulated to enable us to formulate certain general rules for our guidance.

As to the route by which the tumor shall be attacked, with the exception of those cases where suppuration has taken place and the sac and fetal remains may be felt near the vaginal vault, experience teaches that the abdominal route is the path of choice. In my own cases the incision has been made along the outer border of the rectus muscle, and this incision has given satisfaction. It is desirable, I believe, to make the incision low at first, so that, if the gestation is extraperitoneal, opening of the general peritoneal cavity may perhaps be avoided.

As already intimated, the keynote of the operation is the management of the placenta, and the decision to leave or

remove it often decides the fate of the patient. A few general conclusions drawn from my own experience seem justified.

(a) *With a Dead Fetus*.—The placenta and most, if not all, of the sac can usually be removed at the operation for the delivery of the fetus, although occasionally, on account of extensive incorporation of the sac with the uterus, or to facilitate drainage, hysterectomy is indicated at the same time.

(b) *With a Living Fetus*.—After the incision through the abdominal wall, the least vascular portion of the presenting sac should be selected for incision and for the delivery of the fetus. There should then follow the most important step in the whole operation—viz., *a careful examination of the attachment and vascular supply of the placenta and sac*.

Of course we would like to remove placenta and sac, but there are two implantations of the placenta in which, at the time of delivery of a living ectopic fetus, removal of the placenta, in my judgment, should not be attempted: 1. A placenta spread out over the intestines. 2. A placenta spread out over the large pelvic vessels. A misstep here is usually irretraceable and is apt to mean the loss of the patient. For this reason, although in a few cases careful examination will show that the attachment of the placenta is such that its maternal vascular supply can be ligated and checked, and here removal is indicated, in the majority of cases the writer believes that, with a live fetus, more mothers will be saved by leaving the placenta at the primary operation than by removing it.

Of course it is desirable to isolate the placenta and sac as far as possible from the general peritoneal cavity by stitching the sac to the abdominal wound. If this cannot be done isolation may be accomplished by gauze packing.

While the sac in many cases can be largely reduced in size by removing the surplus after drawing it into the abdominal wound, it is desirable that a large opening be left for ease in removal of the placenta.

With the suggestion of Ayers to inject the placenta with a solution of tannin and salicylic acid or formaldehyde I have had no practical experience, but the absence of odor and other evidences of decomposition of the placenta in Case 2, under the simple treatment of irrigation with peroxide of hydrogen and packing with a weak iodoform gauze, gave excellent satisfaction. My experience in this case also leads me to believe that we can greatly facilitate the separation of the placenta, after about a week, by gently inserting a sterile finger between

the placenta and its attachment, around its periphery, and repeating this process at intervals of two or three days, packing gauze in the plane of cleavage thus formed.

Before concluding this paper the writer would like to record briefly the three cases which formed the groundwork of his study.

CASE I.—Mrs. J., age 28; had had one child about six years



Fetus of Case I.

ago. Her last menstruation occurred September 26, 1897. In December of that year she had a slight hemorrhage, but no severe attack of pain. For the hemorrhage she was curetted by her physician, who thought she had aborted. She was admitted to the Sloane Maternity Hospital June 25, 1898. Examination under chloroform showed uterus empty and pushed to the right by a sac containing a live fetus at the left. Fetal heart good. June 27: Patient commenced vomiting and complained of abdominal pain. June 28: Motions of the child

became tumultuous and then ceased; fetal heart no longer detected. July 3: Patient complained of severe headache; urine showed 10 per cent albumin, hyaline and granular casts.

July 7: Operation. Incision along outer border of left rectus muscle. Child extracted. Placenta found attached to sigmoid flexure, uterus, left tube, and anterior abdominal wall. The left ovarian artery was tied and placenta and most of the sac removed. The sac was so incorporated with the uterus that it was deemed advisable to perform hysterectomy. This was done and the abdomen drained above and below. The patient was given an intravenous saline infusion and sent to the ward in good condition. Convalescence was interrupted by a phlebitis, but patient was discharged from the hospital September 28, 1898, in good condition and with abdominal and vaginal wounds healed.

The fetus weighed 4 pounds and 12 ounces.

CASE II.—Mrs. A., age 24; had menstruated last December 19, 1898. On February 27, 1899, during the night, was awakened by a sudden, severe pain in the right side of the abdomen; went into collapse and remained in a very low state for two days. The pain continued more or less severe till the middle of March, and she was confined to bed during that entire time. Bowels were constipated; there was vomiting at times and some headache. Fetal movements were first noticed at the fourth month, and have continued. During February and a part of March there was almost continuous metrorrhagia. In July a bloody flow appeared at the time when menstruation would normally have occurred.

Examination under anesthesia showed uterus pushed to the left by a gestation sac at the right containing a live fetus with breech presenting at the brim.

Operation September 20, 1899. An incision along the outer border of the right rectus muscle disclosed an intraligamentous gestation, the right Fallopian tube passing over the middle of the upper surface of the sac. A thin, relatively non-vascular portion of the sac was opened and a living child extracted. The sac contained but a few ounces of liquor amnii. A careful examination of the attachment of the placenta showed it too intimately connected with the large pelvic vessels at the base of the broad ligament to justify attempts to remove it. The sac was brought up and stitched to the abdominal wound and the sac packed with a weak iodoform gauze. September 26: Dressings changed; a little separation of the placenta;

some hemorrhage. September 28: Wound dressed again; about one-fifth of the placenta removed through the wound; sac irrigated with hydrogen peroxide and again packed with weak iodoform gauze. October 1: A large portion of the placenta removed. From that time portions of the placenta were removed at each dressing until October 16, when the last portion was removed from deep in the pelvis. The wound then gradually contracted, and the sinus closed January 8, 1900.



Child of Case II., three and a half months old.

The child at birth weighed 4 pounds 3 ounces. It was placed in an incubator, and after the first week gained steadily. At first no attempt was made to nurse from the mother's breasts, but on the ninth day milk was found in them and they were massaged every four hours. On the twentieth day a strong baby was started on her breasts, and on the twenty-second day she was given her own baby every four hours, the baby, of course, receiving additional nourishment. On the thirty-eighth day the child nursed every two hours from its mother's

breasts, and after the forty-sixth day received no additional food. The child's photograph, taken at $3\frac{1}{2}$ months, is here presented. The congenital dislocation of the left hip and the small umbilical hernia have already been referred to.

CASE III.—Mrs. M., age 41: seen in consultation with Dr. George Knipe, of New York; had had two children, the last



Fetus of Case III.

five years ago. Her last regular menstruation occurred on October 14, 1898. Six weeks later she began to flow and continued to do so for six weeks. She was thought to have had a miscarriage and was curetted for it. On February 9, 1899, she fainted and was then confined to bed for eight weeks, suffering with pain in the abdomen, occasional vomiting, and marked distension. Metrorrhagia was also a marked symp-

tom. In March she "felt life." From that time until about September 1 she enjoyed fair health, save for "neuralgic" pains and metrorrhagia which appeared about every other week. About September 1 she had slight labor pains, and since then had felt no fetal movement. Three days after the spurious labor her breasts became distended and troubled her for a week. Examination November 4 showed the uterus pushed to the left by a gestation sac on the right containing a dead fetus.

Operation November 8, 1899. An incision through the abdominal wall along the outer border of the right rectus muscle exposed a vascular sac adherent all about the incision. This sac was cut through and the fetus removed, a few ounces of thick, dark-brown fluid escaping. The sac was then separated from the abdominal wall and the general peritoneal cavity opened, but protected as far as possible by compresses. Many loops of intestine were attached to the sac and with some difficulty were separated. Below and to the right the ureter was found coursing along the sac. This was dissected away for a short distance, and then the sac was freed on the left, and the tube and round ligament which overlay the sac were ligated and cut. The adhesions between the lower part of the sac and the ureter, intestine, and pelvic vessels were so firm that it was thought unwise to carry the dissection further, so the placenta and the upper portion of the sac were removed, and the lower portion of the sac was brought up, stitched to the abdominal wound, and packed with a weak iodoform gauze. The fetus, whose photograph is here presented, weighed 4 pounds 14 ounces. Although somewhat macerated, no malformations could be detected. The mother was discharged from the hospital January 20, 1900, with a small sinus 2 centimetres deep, which closed April 30, 1900.

In conclusion, as a result of his study and experience, the writer believes:

1. That the viable ectopic fetus is worth saving.
2. That, within the limitations above outlined, attempts to save the child do not seriously increase the mortality or morbidity of the mother; hence,
3. In the treatment of full-term ectopic gestation the child should receive more consideration than it at present enjoys.

62 WEST FIFTIETH STREET.

COMBINED NEPHRECTOMY AND URETERECTOMY.¹

BY

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It may seem unnecessary for me to occupy your time in the discussion of the subject of this paper, especially when it has recently been so ably presented by Fellows of this Society, notably in the paper of Dr. Bovée; but the experience gained in a recent case has been so valuable to me that I cannot desist from relating the history in the hope that it may prove equally profitable to others who may be required to treat similar cases.

The patient, Mrs. T., was admitted to the Jefferson Hospital December 31, 1899, with the following history: *Æt.* 27 years, married five years, has never been pregnant. With the exception of an aunt who is supposed to have died from cancer of the throat, her family presents no record of constitutional disorder and has been especially free from tuberculosis. She has had some of the ordinary diseases of childhood, malarial fever some years since, and an attack of inflammatory rheumatism at the age of 17, from which she made a good recovery. Puberty was established at the age of 13, and the menstruation has been regular and without pain.

In her seventeenth year she had some trouble with her bladder, causing frequent micturition. The quantity voided was upon some days much larger than upon others, and its passage was always attended with pain. This symptom continued for eight months, when it entirely disappeared. She enjoyed excellent health until four and a half years since, when she was seized with what she called inflammation of the bladder, which caused urination to become very frequent and to be continually painful. The urine frequently contained blood. She complained of a dull, aching pain in the region of the right kidney, which at times was relieved by the discharge of large quantities of urine. At her marriage, five years since, she weighed one hundred and fifty pounds. Since her admission she has weighed one hundred and eighteen pounds. She has suffered from night sweats, but since her admission is found

¹ Read before the American Gynecological Society, Washington, D. C., May, 1900.

to have no cough or expectoration. Her menstruation, as a rule, is regular and lasts from five to six days. Her appetite is capricious and she is quite constipated. Micturition is frequent and painful.

An examination of the urine upon January 1, 1900, was reported as showing the urine turbid, with a neutral reaction, and containing neither albumin nor sugar. Urea was present in 1.1 per cent. Under the microscope neither crystals, blood cells, nor casts were found, while epithelial cells and pus were present.

Bacteriologic examination reveals no indication of the presence of the tubercle bacillus. A cystoscopic examination of the bladder on January 8 disclosed thickened and roughened walls which bled easily from touch. January 13 a Harris apparatus for separating and collecting the urine from each side was employed, after previous irrigation of the bladder. No urine was obtained from the right, while the urine flowed freely from the left. This specimen of urine was turbid, straw-colored, with a specific gravity of 1016. It contained neither albumin nor sugar, while the urea eliminated had fallen to 0.8 per cent. Pus and epithelial cells were present in considerable quantity. No tubercle bacilli were found, though the streptococcus was present.

A careful physical examination disclosed a mass in the right side, a little above the level of the umbilicus, which extended nearly to the median line and was distinctly defined above and below. This mass was slightly irregular and produced an indistinct sensation of fluctuation. The thin appearance of the patient indicated the loss of flesh already mentioned. She had been suffering from night sweats and a daily evening rise of temperature. During the three weeks she was under observation in the hospital prior to operation, the temperature several times reached 102° F., the greater portion of the time being above 100° F., and the pulse varied from 86 to 120. The urine was turbid, containing neither albumin nor sugar, and varied in daily quantity from thirteen to twenty-eight ounces.

A pelvic examination revealed a uterus somewhat enlarged, slightly movable. Upon the right side was a marked induration, between which and the uterus the finger could be pressed. This enlargement extended obliquely forward below the cervix. The mass was quite firm and dense, somewhat more superficial and distinctly outlined than an ordinary pelvic inflammation. Its separation from the uterus, its direction and

superficial situation, associated with the tumor in the right lumbar region, led me to the diagnosis of tuberculosis of the kidney and ureter, even though the diagnosis was not confirmed by the examination of the urine.

The patient was subjected to operation January 23 in the clinical amphitheatre, before the class, and in the presence of Dr. Bovée, of Washington, D. C. After cleansing the vagina the patient was placed in the dorsal position and the vagina exposed with an Edebohls speculum. An incision was made over the line of the right ureter and the tissue pushed back with the finger until the ureter was exposed as a hard, dense cord as large as the finger.

The dissection was continued until a ligature could be carried over it with a Deschamps needle. The cord was very rigid, showing no elasticity, and could not be set free sufficiently to permit of its being dragged down. The ureter was divided with scissors, but unfortunately, in accomplishing the division, the ligature and uterine artery were cut. The latter was secured by pressure forceps. The introduction of a catheter through the urethra also demonstrated that we had opened the bladder. The vagina was packed with gauze, the patient turned upon her left side over an air pillow, and an incision about five inches long made in the right lumbar region parallel to the lower rib. This incision exposed the right kidney, which was nodular and contained a number of pockets from which an aggregate quantity of a pint of pus was discharged. The pus was evacuated and removed by irrigation with normal salt solution; the kidney was readily enucleated from its bed and its vessels tied in two portions with chromicized catgut. The section of this pedicle left the kidney attached only by the ureter, which was put upon the stretch while it was enucleated with the hand. In dissection within the upper part of the pelvis the ureter broke off, leaving two or three inches attached to the kidney. Examination by the vagina revealed that the fingers of the two hands could be made to meet. The greater part of the tube was now removed by passing a pair of forceps upward through the vagina, seizing the ureter and drawing it down. A small portion of the ureter retained its position in the vagina and was subsequently removed by vaginal dissection. The tract was now carefully irrigated with normal salt solution, packed above and below with iodoform gauze, and the lumbar wound closed with silk-worm sutures, except at the upper angle where the gauze drain

was brought out. The vaginal gauze was introduced with a view to close the vesical opening. A Skene self-retaining catheter was introduced and continuously retained, draining the urine through a rubber tube to a basin upon the floor. The gauze remained in place until the sixth day, when it was removed and a rubber drainage tube inserted.

The quantity of urine almost at once began to increase. The following record is of interest: The first day the quantity was 16½ ounces; the second day, 26 ounces; the third day, 22 ounces; the fourth day, 30 ounces; the fifth day, 37 ounces, reaching 55 ounces on the eighth day.

The removal of the diseased kidney seemed to relieve the sympathetic irritation of the healthy kidney and promote its active secretion. The bladder wound united without difficulty, and there was no indication that there had been the slightest leakage into the vagina.

PATHOLOGICAL REPORT. *Specimen.*—Right kidney and ureter. The specimen consists of an ovoidal, slightly irregularly reniform mass measuring 13 centimetres in length, 7.5 centimetres in width, 5 centimetres in thickness, and weighing 252 grammes. With the exception of one dark-red area, it is of a light-reddish color, irregularly mottled with gray areas varying from 1 millimetre to 1 centimetre in diameter. The mass is covered by a smooth, glistening capsule which strips with considerable resistance, tearing at a number of places. On one surface there is a small amount of fat and a depression measuring 1 centimetre at its deepest point. One side of the depression is of a dark-red color, the other is of a grayish color. About the centre of this surface there is an area of firm tissue which on section cuts with considerable resistance. The cut surface is of a grayish color, having scattered in it yellowish areas about 3 millimetres in diameter. Along the border of this surface are two areas: one is hard and projects 1 centimetre above the surrounding elements, and when cut a thick, yellowish, homogeneous material oozes out. Spreads were made from this material and examined microscopically.

The other area is soft and flabby, and is apparently somewhat sunken. On section a large cavity is found extending into the deeper structures for 4.5 centimetres, and communicates with a cavity on the opposite side. The walls of the cavity are very irregular and are composed of grayish-white material.

On the other surface there is an incision which opens into a large cavity that undermines nearly the whole surface. Its

walls are irregular and ragged, and are composed of a soft, dark-red substance in which are scattered grayish spots 1 millimetre in diameter. Close to the border of this surface there is found another cavity, the walls of which are ragged and irregular and composed of grayish-white material; it communicates with a cavity on the opposite side. Attached to one border of the surface already described is a mass the surfaces of which are of a dark-grayish color. This mass cuts with a considerable resistance and is undermined by two large cavities. The walls of these cavities are rough, ragged, and of a pinkish color, mottled with spots of a bright-red and yellow color.

Accompanying the specimen is a cylindrical mass measuring 18 centimetres in length, 1.5 centimetres in diameter, and weighing 50 grammes. It is quite firm in consistence and cuts with considerable resistance. Passing through it longitudinally there is a canal that will admit a probe 2 millimetres in diameter. On opening the canal it is found to be lined with a dirty-gray-colored structure.

Cubes of the larger ovoid mass and pieces of the cylindrical mass were taken for microscopic examination. They were fixed in Heidenhain's solution, dehydrated in alcohol, embedded in paraffin; sections were stained with hematoxylin and eosin, hematoxylin and picric acid, and toluidin blue alone, also by Weigert's method and by the Koch-Ehrlich method for demonstrating tubercle bacilli.

Histology.—Microscopic examination shows that it is kidney substance. It is covered by a very thick fibrous capsule, but is not as dense as the normal capsule. Most of the kidney structure is replaced by fibrous tissue. Some of the Malpighian tufts have been quite fully transformed into fibrous tissue, others are greatly decreased in size, while others are nearly normal in size but their capsules are thickened. While many of the tubules are obliterated, there are some which are nearly normal in size and are lined by normal epithelium. The interstitial fibrous tissue shows evidence of proliferation. Other tubules are very much narrowed, but the epithelial cells in some of them are still intact. Everywhere there is an abundant cellular infiltration between the tubules. In the cortical portion here and there are areas in which the round-cell infiltration resembles a tubercle and contains a few giant cells structurally identical with those usually seen in tuberculosis. They are surrounded by the usual lymphoid and hyaline elements. In the medullary portion, especially near the pelvis,

the round-cell infiltration is unusually abundant and there are numerous areas of hemorrhage.

The cylindrical mass is a ureter and shows a large increase in fibrous tissue, an abundant round-cell infiltration, but no giant cells or conclusive evidence of tuberculosis can be identified. The normal epithelial lining has been fully replaced by granulation tissue. Many of the blood vessels show a proliferation of the connective tissue just beneath the intima—an obliterative endarteritis such as is commonly present in areas of tuberculosis. No bacilli or bacteria were found in sections stained for that purpose. Spreads made from the contents of the cavities in the specimen show bacteria resembling the staphylococcus.

Diagnosis.—Renal and ureteral tuberculosis with marked hyperplasia of both structures.

The patient was discharged the 23d of April as well. The wound had completely healed, and vaginal examination failed to reveal any indication of the former lesion upon the right side of the pelvis.

In performing this operation upon another patient, I should practise Eastman's method of forcible dilatation of the sphincter ani, in order to facilitate the greater retraction of the perineum. I would place the patient in Sims' position, make an incision over the ureter, and complete its enucleation throughout the greater part of the pelvis. The ureter should be caught with a blunt hook, secured by a ligature, and then drawn until its juncture with the bladder is rendered prominent, when it should be incised with scissors and the opening in the bladder well closed with catgut sutures. This procedure permits the ureter to be freed with less danger to the uterine artery.

The pelvis is packed with gauze and the operation completed by the lumbar incision. The peritoneum can usually be separated with ease, permitting the ureter to be set free to the point where it has been separated by the vaginal incision. The ureter can be removed with the kidney through the lumbar incision, or, as in the operation described, from the vagina. In the male the lower end of the ureter can be assailed by an incision through the perineum in front of the anus.

The retroperitoneal procedure probably does not afford as ready access to the ureter throughout its length, but it seems the preferable plan in that it preserves the peritoneal cavity from contact with the purulent contents of the renal sac.

The removal of the ureter is absolutely indicated not only in tuberculosis of the kidney and ureter, but as well in all pus

collections of the kidney when associated with obstruction of the ureter, whether it be blocked by a calculus or a stricture of the duct.

I was first impressed with the importance of this assertion by the history of a patient now under my observation. She came under consideration January 6, 1899, with this history: *Æt.* 37 years, with two children. She began to suffer ten years ago after birth of her second child. One year ago the left kidney was extirpated because of a pus collection. Suppuration has been continuous since, and at one time a calculus was discharged from the sinus. She has had considerable pain of late and suffers from pain in the hip and thigh, with marked stiffness and pain in locomotion. I suspected a pus collection in the ureter and advised its extirpation. On January 11, 1899, in my sanatorium, an incision was made in the vagina between the uterus and bladder, and blunt dissection made through the broad ligament to reach the indurated mass supposed to be the ureter, but without discovering it. Then an incision was made over the left lumbar space just above the crest of the ilium. In cutting through the cicatricial tissue the peritoneum was opened, but closed at once with chromicized catgut. I found it had been opened in the previous operation. The sinus was followed up and was found to burrow beneath the psoas muscle and upward along the course of the spine. The muscle was infiltrated with an extensive exudate which rendered it hard and rigid. After cutting through the dense mass which bound the peritoneum to the muscle, the peritoneum was pushed away from the muscle, which was firm and hard from the infiltration and exudation which I had mistaken for the indurated ureter. I was unable to find and pick up the ureter. With the fingers of one hand working from above, and those of the other working from below, I was able to make the fingers of the two hands meet, and, with long forceps introduced from below, was able to connect the two wounds by a good strip of iodoform gauze. This method of treatment completely relieved the difficulty in locomotion, but the sinus still remains. Much to my disgust, the patient discharged from the upper part of the fistula another good-sized calculus. In this patient the pyogenic lining of the ureter has undoubtedly been the source of irritation which has maintained the suppuration from the sinus and from which the psoas muscle was infected, causing spinal caries to be simulated.

DIPHTHERIA DEATHS AND ANTITOXIN STATISTICS.

BYADOLPH RUPP, M.D.,
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DURING the long stretch of time antedating these antitoxin days, the cases of diphtheria that died attracted most attention and were most fully and thoroughly described. But now the tables are turned, because attention is given to the diphtheria cases that get well or are cured (?), especially so when antitoxin has been given.

However much enthusiasm antidiphtheritic antitoxin has aroused, many practitioners look upon the remedy as a clever politician is viewed—fuller of glowing promises than happy realizations. Those who advocate the use of antitoxin are often more vehement than studiously critical, and judge matters within the limited and unrelated circle of their own personal experience.

Classified according to their etiology, diphtherias are of three kinds, and severer in type as they become less simple: (1) simple infections, (2) mixed infections, (3) secondary infections. Clinically, for diagnostic purposes, this classification has no real or exact value, but is of some practical use in making approximate classification possible. In reality all cases of diphtheria are mixed infections from the start. The amount, and manner or quality, and intensity of infection are questions or problems of more or less. The less intense the infection the more benign will the disease be and the less likely will death result. Monti and many other strenuous advocates of the antitoxin treatment of diphtheria tell us over and over again that since its introduction the chances of recovery from diphtheria have been enormously (*ganz gewaltig*) increased. This optimistic assurance is tempered by certain conditions. It is taught that the antitoxin must be given early in the disease, and not only that, but must be given in proper and sufficient doses. If these demands be realized, says Monti, no case that has a mild beginning can end gravely, except such cases which, for reasons that are not known, fall a prey to septic bacteria.

Clinico-pathologically, diphtherias have been divided into: (1) the fibrinous forms, (2) the phlegmonous forms, (3) the gangrenous or septic forms. This classification also is convenient and practical rather than really natural. All classifications are abstractions, but they may be none the less useful on that account. A net may not catch all the fish, but it catches a great many. The sum total, or rather *ensemble*, of diphtheria is a very complicated affair. It is not typified by any one case of any of the classes mentioned. Nor are the majority of cases of any single epidemic typical. It is the most erratic of infectious and contagious diseases. The true picture of diphtheria is found in both its varying and permanent characteristics; in the past and in the present; not only here or there, but here, there, and everywhere! All observing and reasoning on particular incidents peculiar to diphtheria must be done with liberal margins of allowance and a fair historical perspective. And the collective phrase, *genius epidemicus*, signifies a fact that has not as yet been unravelled scientifically. It may be a mystery to many of us, but it is not a myth.

The diagnosis of particular cases of diphtheria is often no difficult matter, even for purposes of formulating a prognosis. Sometimes the difficulty is great. Monti thinks the difficulty is marked when the exudate or pseudomembrane is poor in fibrinous material. But even such cases clear up for the best in a remarkably short time quite frequently. Not only the local signs but the constitutional symptoms must enter into the solution and determination of a prognosis. And the local signs have reference not only to character, whether predominantly fibrinous, phlegmonous, or gangrenous, but to site—faucial, palatal, pharyngeal, laryngeal, etc.—and the rapidity of formation, desquamation, distributive advance, etc. It is not an object of this paper to dwell specifically on diagnosis and prognosis. These points are touched upon only in a suggestive way, and have a passing reference only to the particular object of this paper—namely, the inadequacy of antitoxin statistics to demonstrate a diminished death rate. In a former paper I directed attention to the fibrinous varieties of diphtheria, and singled out Aylward and Monti for criticism. Now let us go on with Monti's phlegmonous and gangrenous cases, which, like the fibrinous, are, for purposes of antitoxin therapy—good and better—divided into two groups: (1) those treated from 1894 to 1897, when the antitoxin was not given

as thoroughly nor in as large doses as was done (2) in those cases treated from 1887 to 1899, when even as much as 5,000, 6,000, and 17,000 units were given to force a cure.

Group 1 comprises 88 cases of phlegmonous diphtheria; 17 of them died—a mortality of 19.2 per cent.

Group 2 was made up of 41 cases of (phlegmonous) diphtheria, and 16 of them died, resulting in a mortality of 24 per cent. This does not look at all favorable for increased antitoxin energy. This increased mortality rate is, however, reduced to 8.8 per cent by deducting 5 cases that had not been serumized and 2 that had been serumized “too late.” There is thus a 10 per cent difference obtained in favor of a more energetic therapy. And yet, all deductions granted, Monti says the difference is not a striking one. But there are other things to think of than Monti’s partial disappointment. Were there no deductions to be made from the first group? Was there no epidemic difference to be taken into account? But Monti gets over his disappointment with assuring ease. He says the mortality for phlegmonous diphtheria before antitoxin was administered used to be, in his experience, 25 to 40 per cent. Such is not a scientific, but an impressionist way of speaking. It is not exact in any way. Monti’s experience, although as respectable as anybody’s, and no doubt very good, is not everybody’s experience, nor is it an experience that can be said to fit the general experience of all practitioners at all times and at all places. Besides, one may ask, were there no moribund cases and “too late for any treatment” cases to be excluded, so as to fairly mitigate the unserumized mortalities of former experience, etc.? Monti’s figures do not give us the chance of forming an independent or justifiable opinion, and his figures—his statistics—for reasons given, do not justify his own conclusions. What follows is a further analysis of the two groups of phlegmonous diphtherias. Ten cases of the first group (88 in all) were intubated and 3 died—about 33 per cent mortality; 2 tracheotomies ended fatally, and of 2 secondary tracheotomies 1 died.

Of the second group (41 cases in all), more energetically serumized than Group 1, 10 demanded surgical relief. Seven were intubated and all recovered; but 2 out of 3 tracheotomies died. One of the tracheotomies was moribund when operated on. Comparing the final results of the two groups, can we say that bigger doses of antitoxin, administered more frequently at shortened intervals, as Monti says characterizes

the treatment of the second group—can we say that more energetic treatment with antitoxin gives commensurate results? Hardly. The second-group cases required surgical help nearly twice as often as the first group; that is, about 12 per cent of the energetically antitoxinized group needed operative aid, and about 24 per cent of the thoroughly antitoxinized group called for it. But about 40 per cent of the first group operated on died and only about 20 per cent of the second group died. Does not this speak the better for more thorough serumization? Not at all. In the first place, if the reputation of antitoxin is well founded, it should have *decreased* the number of necessary operations; and, in the next place, if the operated cases did not die from extension of membrane down into the bronchi, the cases of death in both operated groups died from causes which antitoxin advocates teach us are not prevented by antitoxin.

Lastly, Monti fails to tell us that the epidemic at Vienna was at its height during 1894, but he does not tell us how many of the first group of cases fall within this year. Moreover, Dr. Albert Ullrich¹ treated 92 cases of diphtheria at the K. K. Elizabeth Spital (Vienna) and lost 30 of them, making his mortality (antitoxin) over 30 per cent; and 14 of his 17 tracheotomies died—over 80 per cent. There has been quite a difference in the antitoxin results in the hands of different observers at Vienna. And this considerable variation of antitoxin mortalities—that is, mortalities where antitoxin had been faithfully used—in the hands of individual observers during different years, and in different hands during the same years, has urged antitoxinizers to double and quadruple the doses originally considered sufficient. Is this science, or is it empirical desperation?

Monti's septic cases are few in number and they prove nothing directly either for or against antitoxin therapy. From 1894 to 1897 he treated 21 septic cases which had been given ordinary doses of antitoxin, and 16 of them died—76 per cent; and from 1897 to 1899 he treated 6 septic cases with increased antitoxic vigor, and 5 of them died, or 83 per cent. But bad as these figures are, he feels constrained to console himself with the general reflection that where antitoxin was not in vogue a septic case rarely recovered. So much for Monti. He asserts that the antitoxin statistics furnished by most reporters are not to be depended on, because reporters have not differentiated

¹ Jahrbuch des K. K. Krankenanstalten der Stadt Wien, 1896.

the cases they treated, and because in many instances their doses have not only been too small, but had not been administered often enough and at too long intervals. Neither has Monti divided and defined with sufficient circumspection and care. From what has been reviewed, can the conclusion be drawn that he has proved his case? Certainly not.

Only the other day Prof. Ebstein² at Göttingen told his class that the results at Göttingen with antitoxin in the treatment of diphtheria had, after years of observation, remained about the same as they had been before antidiphtheritic serum or antitoxin had been used; and he adds, because the method of treatment is harmless, antidiphtheritic serum is continued as a remedy for diphtheria. But, at the same time, he admits that a number of unwished-for nuisances (*mancherlei Unzuträglichkeiten*) are bound up with it (the antitoxin treatment). Teaching of this kind is prudent. Ebstein in this lecture gives no figures, no statistics.

And yet, from a broader study of the subject than any one personal impression can possibly give, something more than a number of disagreeable side effects or nuisances are found to be bound up with the antitoxin treatment of diphtheria. These disagreeable side effects antitoxin enthusiasts at first denied and tried to explain away. They are now generally admitted. But we can never tell *when* they will appear. Therefore it cannot be the serum only and alone that is the cause of these *Unzuträglichkeiten*—these nuisances. Is it some other noxious element that enters into the mixture in the course of manufacture? Or are they due to a surplusage of curative material and curative endeavor? Monti tells us: “It is clear that the more injections are made, the greater the quantity of serum that is injected, the greater the frequency of the evil accidents.”¹ And he goes on to say that the duration of diphtheria is prolonged by increased serum injections from seven to twenty days, depending on the amount of serum injected; and although he has injected 30 and 40 and even 75 cubic centimetres of serum, he has not in a single instance found death result or a permanent injury to the health induced. But surprises of this kind in the experience of others are not absent in antitoxin literature.

Now let us see what dead-house study can teach us. Dr. Richard Kretz has studied and tabulated some of the dead-

¹ “Leben und Streben in der Inneren Medicine,” Stuttgart, Ferd. Enke, 1900, p. 29.

² Op. cit., p. 307.

house results of the K. K. Franz Joseph Spital of Vienna, and from his studies concludes that antitoxin is the remedy of remedies for diphtheria, provided it be administered early. I copy his Table 2¹ as he gives it:

					I.				II.				III.											
					Simple diphtheria.				Diphtheria plus complications.				Diphtheria sequelæ.											
Treatment.					Nasopharynx.	Gangrene.	Croup.	Total	Pneumonia.	Suppuration.	Tuberculosis.	Nephritis.	Total.	Pneumonia.	Suppuration.	Tuberculosis.	Cardiac death	Marasmus.	Other sequelæ.	Total.				
Cases treated without serum, 1893-4..					908	390	42.9	289	232	71	78	172	63	7	20	5	95	7	5	7	3	1	...	22
Cases treated with serum, 1895-7.....					1,081	217	20.1	183	.	18	25	43	53	5	19	1	78	25	7	10	10	9	1	62

It will be observed that Kretz divides his cases into two groups, Group 1 being made up of cases belonging to the years 1893 and 1894; Group 2 is made up of cases belonging to the years 1895, 1896, and 1897. No antitoxin was used during 1893 and 1894. Antitoxin was used during 1895, 1896, and 1897. The mortality of the first group was 42.9 per cent, 390 children out of 908 having died. The mortality of the serumized cases, 1,081 in number, is 20.1 per cent, 217 children having died—a difference of 22 per cent in favor of Group 2. But so far these figures are *not* representative of things as they are. All the figures of the table are isolated figures, and by themselves they mean nothing of any consequence. In all his optimistic reasonings and explanations Kretz is oblivious, in a very unscientific manner, to what went before the year 1895 and what followed.

From 1891 to 1894 inclusive the deaths from diphtheria and croup gradually increased from 1,311 to 1,679. During the year 1895 the number of deaths fell to 710, a difference between 1894 and 1895 of 969 deaths. Was this due to antitoxin therapy, which was inaugurated during 1895 (but in a not very satisfactory manner)? Hardly; because this would be assuming that all practitioners had given antitoxin in 1895 and had got similar or like results. But the mortality results at the Franz Joseph and Elizabeth Spitals varied greatly. At the first, 66

¹ Wiener klin. Wochenschrift, No. 21, 1898.

² Most of them infants.

children out of 372 died, and at the second hospital 30 children out of 93 died—a difference between the two hospitals of about 17 per cent and 33 per cent mortalities. And serum used at both hospitals! From the year 1880 to 1884, at Vienna, the number of deaths from diphtheria and croup dropped from 597 to 342—a drop of 43 per cent, and no antitoxin used. From 1895 to 1898, at Vienna, the number of deaths dropped from 710 to 520—a drop of only 26.7 per cent, and antitoxin used, and used with increasing energy by some. Now, if the inefficient and not altogether sufficient use of antitoxin be assumed to be the cause of the great and sudden diminution in the number of deaths by diphtheria and croup in the year 1895, *why* did not increased dosage and increased energy in its use continue to do better from 1895 to 1898 than natural agencies did during the years from 1880 to 1884 inclusive? Between these antitoxin years (1895 to 1898) and the years (1880 to 1884) when no antitoxin was used there is a difference of about 17 per cent in favor of no antitoxin.

It is only by looking before and after that we can hope to go correctly and straight when studying Kretz's dead-house figures along with his optimistic conclusions. Kretz's figures are not clear as day, but they are as good as can be got. In Section 1 of his table the uncomplicated diphtherias are tabulated that were autopsied. And what are we told to infer from the totals? See 43 for antitoxin as against 172 deaths where no antitoxin had been used. Phenomenal! Certainly. But here are other facts to be taken into account. When epidemics are severe, early deaths are occurring oftener to be tabulated than when severe cases are not so common. There were more severe cases of an acute character to be found in 1893 and 1894 than during the three following years. Therefore we have tabulated 23 deaths from nasopharyngeal diphtheria in infants among Group 1 and none such among Group 2, there are 71 cases of gangrene in Group 1 and only 18 such in Group 2—and antitoxin does no good in gangrenous diphtheria. When epidemics are severe and intense, then, too, croup cases are commoner, and the operative results are less favorable than when epidemics are milder in character. Therefore the greater number of croup cases in Group 1 than in Group 2. That antitoxin has nothing to do with the lesser number of croup cases in Group 2 is demonstrated by the absence of nasopharyngeal cases and the comparatively few gangrenous cases. Kretz compares things that are unlike, but draws con-

clusions as though like things conditioned alike were being compared. He has fallen into the easy fallacy of thinking that contrasts and comparisons are processes that turn out like results. They are unlike. Looking at the second division of the Kretz table, made up of diphtheria deaths plus complications, we can see only disappointment for antitoxin enthusiasts. There are nearly as many pneumonias here in the serumized group as in the non-serumized group. Did antitoxin favor the development of pneumonia? Division 3 of the Kretz table is very much worse for the antitoxinized group than for the *unantitoxinized* group. Only 7 cases of pneumonia where no antitoxin was used, against 25 cases where antitoxin was used; and only 1 case of marasmus where no antitoxin was used, against 9 cases of marasmus where antitoxin was used. How does Kretz explain this? In the usual stereotyped fashion: antitoxin prolongs life, and therefore more cases of diphtheria are given a chance to die of complications and sequelæ than when no antitoxin is given. But taking Kretz's table and making allowances for greater epidemic influences in the first group, how do matters stand? Deducting the gangrenous cases of both groups and the nasopharyngeal cases from the first group, is there any difference left that is big enough to jubilate about in favor of antitoxin?

406 WEST THIRTY-FOURTH STREET.

SOME OBSERVATIONS ON PRYOR'S METHOD OF REMOVING THE FIBROID UTERUS:

WITH A REPORT OF TEN SUCCESSIVE SUCCESSFUL CASES ¹

BY

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RATHER more than twenty years ago the writer had the good fortune to assist the late Prof. Trenholme at many operations for the removal of fibroid tumors of the uterus, or, more properly speaking, of fibroid uteri; and although Dr. Trenholme was at that time admittedly a genius and the pioneer gynecol-

¹ Read before the American Gynecological Society, at Washington, D. C., May 1, 1900.

ogist and abdominal surgeon of Canada, his death rate, as indeed that of other first-class operators at that time, was so high—over sixty per cent—that the writer determined that he would never remove the fibroid uterus unless some great improvement should be discovered in the technique by which the death rate would be lowered very considerably. He therefore continued to treat these cases by ergot, by curetting, and occasionally by removing the ovaries—an operation which Trenholme was the first to perform with this definite object in view. The results of these various methods were satisfactory only in a certain proportion of cases, the ergot and curetting being very unreliable, while the removal of the ovaries had quite a death rate from hemorrhage or infection. Moreover, in some of the writer's cases it required as long as two years before the hemorrhage ceased, and during all that weary time of waiting the operator had to submit to the disappointed reproaches of the patient and her friends. Therefore, when Apostoli published his remarkable results with galvanism in high and measured doses, the writer first investigated it and then gladly adopted it. During the next ten years 102 cases came to him for electrical treatment, many of them long distances, from the States of Arizona, Pennsylvania, Massachusetts, and New York, and the provinces of Manitoba, Ontario, Quebec, and New Brunswick; 63 of these cases were cured of these symptoms and remained so when last heard from. Several of them are living here in Montreal and are frequently seen, and are positively known to be well at the present time. As for the mortality, only one patient died from the electrical treatment, and she was not a case of fibroid; she had an ovarian cyst tensely filled and impacted in the pelvis, which was unfortunately punctured, and death from peritonitis ensued. The result was so satisfactory in the majority of cases that the writer would have employed no other treatment had it not been for the rather more than thirty per cent of failures and partial failures. Even these he would have frankly abandoned had he not learned of the considerable lessening of the mortality obtained by Dr. Joseph Price with the *serre-neud* and transfixion pins. A visit was paid to Philadelphia and Dr. Price's method carefully observed, with the result that about 18 cases in which electricity was not well borne or had not proved satisfactory were submitted to the operation, 3 of them dying and 15 making a good recovery. Many of these cases are also known to be alive and in good health. As long as the death rate of

the best operators remained so high as 10 or 15 per cent, the writer felt it his duty to treat as many cases as possible by electricity and as few as possible by operation, reserving for the knife only those cases in which electricity could not be employed or in which it failed to cure the symptoms. When Baer reduced the mortality five or six per cent more, the writer began to feel that it was as much for the patient's interest to operate as to try electricity, so that he then began to operate occasionally in preference to the other treatment. When, however, Dr. Pryor, of New York, made still further improvements in the technique, by which the mortality fell as low as three or four per cent, there was no longer any reason for giving the preference to any other treatment, and from thenceforth removal by Pryor's method has been adopted as the proper course to pursue in every case. True, there is still a death rate in the hands of the average operator of about five per cent, but to compensate for this the result is very much more satisfactory. For even when the tumor was cured symptomatically by electricity, the bulk of it still remained and was liable to undergo malignant degeneration; so that, rather than run this risk, it is better to accept a small mortality from the operation.

The writer feels that it is due to himself, as well as to others who have followed the same course, to thus point out that one may at one time be strongly opposed to operative treatment and at another be equally in favor of it, and yet be perfectly consistent. Circumstances alter cases. The change in the technique and the consequent alteration in the death rate explain and justify the change in opinion. The advantages of Pryor's method are so great that they cannot be too widely known; for if his method were generally accepted by all operators throughout the world, there would probably be a saving of several hundred lives a year. Pryor's method is so well known and so highly appreciated by the members of this Society that for them it is hardly necessary to say any more; but the Transactions of the Society are so widely read and the criticisms on the papers are so just that there is no better method of expressing the writer's own appreciation of the operation, and of recommending it to other operators in preference to all other methods, than by bringing it before this Society.

The essential difference between Pryor's method and any other abdominal hysterectomy is the starting from the top of the broad ligament on the easiest side and working from above

downward until the uterus is divided about the level of the internal os, and then working from below upward on the difficult side until the tumor is rolled out of the incision. Supposing, for instance, that the tumor is situated in the left half of the uterus, separating the layers of the broad ligament and extending out to the wall of the pelvis. In that case we begin by tying the right broad ligament, just outside the ovary and tube, with medium-sized chromicized catgut; then we apply a long, narrow clamp on the right side of the uterus to prevent bleeding from the tumor. A second ligature is placed on the right round ligament, which latter is then cut boldly across in a slanting direction from without inward, so that the lower end of the incision extends down to the lower end of the clamp on the side of the uterus. There need be no fear of bleeding, and so far not a drachm of blood will have been lost. By this cutting of the broad ligament the tumor will have been considerably loosened and can be raised two or three inches higher out of the pelvis by dragging it firmly to the other side. By running the finger down along the clamp the two layers of the broad ligament will be separated at the bottom of the incision, and almost immediately the uterine artery will be felt pulsating between the thumb and finger. An important point here is on no account to cut anything until that pulsating artery has been found and tied; it is always there, lying loosely in the cellular tissue between the layers of the broad ligament; and if we insist upon finding it before tying it, instead of tying it without finding it, we will save ourselves a great deal of trouble and the patient a great deal of danger. Dr. Kelly, from whom the writer learned the operation, uses a small curved needle on a holder, but the writer prefers a Deschamps needle armed with a long, chromicized catgut, which is passed around the artery and nothing else, about an inch away from the uterus. The writer hopes that this will meet the eye of his friend Dr. Jacobs of Brussels, who is an elegant operator, but whom he saw removing the uterus by cutting everything first and allowing it to bleed an instant, and then clamping it and tying it; by this means a few ounces of blood were lost, when the operation might have been bloodless. Now drag the tumor backward for a moment while you make a single light and sweeping cut across the front of the tumor, about an inch above the bladder, from one round ligament to the other. Quickly push the bladder down, at first with the handle of the scalpel and then with the finger, until the end of the cervix can be felt

through the vagina. Now drag the tumor to the left again, and with one or two cuts with a stout curved scissors sever the cervix at the level of the internal os, when the tumor will roll right over out of the incision. It is now only held by what appears to be a narrow band of thin tissue, but the left uterine as well as the left ovarian artery is in it. Feel for the former pulsating and tie it individually and alone. Put another ligature on the left round ligament, and a third on the left ovarian artery just outside of the ovary. The left broad ligament is now severed and the tumor removed without the loss of half an ounce of blood. If clamps are put on both sides of the uterus before any cutting is done at all, the operation will be entirely bloodless, as the half-ounce above mentioned comes from the tumor and not from the woman. The writer has seen Dr. Howard Kelly remove the tumor in three minutes from the beginning of the incision in the abdomen, by placing clamps on the arteries, the clamps being replaced by ligatures afterward. By this means there is a slight saving of time on account of having more room in the pelvis for placing ligatures. But this saving of time is more apparent than real, and it is taking a risk and may lead to great trouble eventually; for if by any chance the uterine artery should slip out of the clamp, the hemorrhage will be so sudden and so terrible that before the retracted artery can be found at the bottom of the well of blood the patient's fate will have been decided in the negative. This terrible accident happened to the writer in a beautiful case of a sixty-pound fibroid tumor which had been refused operation by several good operators, and which for that reason the writer was all the more anxious to save. All was going well and the tumor had been quickly removed, when the uterine artery of the right side, which was only three-quarters of an inch long, slipped out of the clamp and it was impossible to get it again. Although the internal iliac was found and tied in less than two minutes, the patient died on the table. The accident would not have happened if the writer had followed the rule then, which he has followed ever since, never to cut until the artery has been felt and tied securely. The artery in this case was as big as the little finger and could be felt throbbing most distinctly, and there was no excuse for not tying it before cutting it. After the tumor has been removed, it is well to put another ligature on behind the front one, in case that, the latter having been placed while the parts were on the stretch, the artery might slip out when they have become relaxed. There are

two other spots where an extra ligature is required—namely, just beside the cervix, where a little branch runs up from the vagina which is not constricted by the ligature of the uterines. A little wedge is now taken out of the cervix so as to allow the anterior and posterior flaps to come together, but nothing is done in the way of disinfecting or draining the cervical canal, except that the little plug of mucus in it is gently wiped away. The cellular tissue between the layers of the broad ligament, as well as the cervix, will now be quite dry. The cervical flaps are brought together with medium catgut, and then a running ligature of fine catgut is carried from one ovarian artery to the other, taking care to turn the peritoneal edge well in. The omentum should, if possible, be brought down to meet this line of suture.

There are several questions connected with this subject that the writer has taken a good deal of pains to answer on an experimental basis.

First: Shall we leave the ovaries and tubes? It is better not to do so, for the following reasons. First, because several of the writer's patients have assured him that they had exactly the same sexual feelings since the operation as they had before, although every vestige of the ovary and tube had been removed. Second, because Jacobs of Brussels, who has had an immense experience of leaving the ovaries and tubes after removing the uterus, assured the writer that it did no good, as before long the ovaries atrophied and ceased completely to show any evidence of their presence. And, third, because if they do no good they may do harm and mar the brilliant results of the operation by causing pain for a considerable time. In one of the writer's cases there were two cystic ovaries and a double hydrosalpinx. The patient was a widow, 42 years of age, and her operation took place at the Western Hospital more than a year ago. She is now in robust health and called to see the writer a few days ago to ask for employment as a nurse. She stated that her sexual feelings were as strong as ever they were. So that the ovaries are not essential for that purpose.

Shall we further the interests of our patients by doing myomectomy, or shall we remove the whole uterus? While admiring the beautiful technique of Dr. Howard Kelly, the writer wishes to disagree with him in his latest views on myomectomy. The writer agrees heartily with Dr. Gordon, of Portland, in the conclusions of his paper of last year,

when he says: 1. That myomectomy is attended with a mortality as large as hysterectomy. 2. That fibroids may exist where large ones have been removed, and develop more rapidly after such removal, demanding a second abdominal section; that this condition is one of frequent occurrence in cases of small growths. 3. That in all operable cases in women who have passed the child-bearing age, hysterectomy is by far more conservative of health than myomectomy. 4. That in only comparatively young women is the gynecologist justified in doing a myomectomy when it is found necessary to do an abdominal section. 5. That conservative gynecology demands saving health rather than diseased or useless organs. The writer would, of course, make an exception in favor of removing a single pediculated fibroid from a young woman whose uterus was otherwise healthy, one case of which he has reported as having operated at the third month of pregnancy, the patient going to full time and normal labor. Also would he except uterine polypi, no matter how large they might be; for a polypus must have a pedicle, and this has only to be severed, under proper precautions, for the patient to be cured. There is no question here whatever of removing the uterus. The writer has reported one case in which the polypus was as large as a full-time fetal head, and after severing the pedicle with the *écraseur* the tumor was removed with the obstetric forceps, the perineum having to be cut at each side in order to avoid a laceration through the sphincter.

The writer might here mention that the first time that he heard Dr. Gordon say at a meeting of the American Medical Association that all fibroids should be removed as soon as they caused symptoms, the writer stood, or rather sat, aghast and came to the conclusion that Dr. Gordon was a dangerous man. But he wishes to take this opportunity of making the *amende honorable* and to state his conviction that Dr. Gordon was right and that his only fault was that he was ten years ahead of his time. The writer is convinced that all fibroids give symptoms, if we could only recognize them; hemorrhage and pain are not the only ones—women may die from fibroids without either of these. The worst symptom is the general breaking-down of health owing to reflex disturbances of digestion. The best time to operate is before the constitution is weakened, and Dr. Gordon was right, therefore, in saying that all fibroids should be removed as soon as discovered. The writer can also corroborate Dr. Gordon's

statement that there are generally many fibroids where there is one; the writer has cut open and made cross-sections of many of his fibroid tumors, and it would hardly have been possible to have saved any of them if he had performed myomectomy, as there would have been nothing left but a ragged, shredded mass which would almost surely have become septic, as it could not have been patched up. Moreover, the number of women with fibroids who bear children is very small. Many of the writer's cases were over 45 years of age and single. What object is there in leaving a lacerated débris of a uterus, perhaps with diseased ovaries and tubes, in such a case? The writer would like to mention just here that all the regrets and reproaches of his operations have come, not from removing too much, but from removing too little. With the best of intentions he has left in ovaries and the halves of ovaries, sometimes at the absolute command of the patients, who have ever since reproached him bitterly for not having cured them while he was about it. If there is one lesson more than another that he has learned in his ten years of operative work, it is this: "Whatever is necessary to be done to cure the woman, do it at once." We will receive no credit, but much blame, for our conscientious endeavors in the direction of conservative work. We are taking chances; if it turns out all right we get no particular thanks, for we have done no more than was expected; but if it fails to cure the woman of her pains or other symptoms she becomes a bitter enemy, and we will find our reputation hammered down by her and her friends, until she ends by going to one of our assistants to complete our unfinished work. The writer cannot remember one woman who has reproached him for removing her ovaries, but he can think of half a dozen who were once friends who have become bitter foes because he tried conservative work upon them. He has about come to the conclusion that it is better to be thorough. He has had quite a number of cases in which he has had to complete the work of his colleagues—work which had hurt their reputation in spite of the writer's efforts to save it. Two years ago, at Edinburgh, Doyen, of Paris, gave a comparative demonstration of myomectomy and hysterectomy on the same patient. By the aid of a corkscrew, in a few minutes he removed about a dozen small fibroids, but the uterus which remained was such a lacerated shell that he proceeded to remove it by his method rather than allow the patient to run such a risk of her life.

Another point which the writer has settled to his own satis-

faction is the importance of leaving the cervix, which Doyen does not do. In this respect Kelly's method is far superior to Doyen's. There are many reasons why it is better to leave the cervix: 1. More blood is lost, and it takes longer to stop the hemorrhage, and everything should be omitted from an operation which unnecessarily prolongs it. Shock is very often only another word for prolonged anesthesia. 2. A stronger pelvic floor is left when the cervix remains. 3. There is less danger of sepsis when the vagina is not opened into. 4. The vagina is very much shortened by the removal of the cervix, so that sexual intercourse becomes difficult. 5. Sexual feeling is more apt to continue when the cervix remains, as there seems to be no doubt but that sexual feeling resides more or less in the cervix. As for the objection that the cervix sometimes becomes malignant, this happens very rarely, for the reason that about 95 per cent of cancers of the cervix occur in women who have borne a child and have had a lacerated cervix; and as it is the exception for women with fibroids to have children, nearly all the cervixes belonging to fibroid uteri are nulliparous ones and consequently non-cancerous. Even if in rare cases the cervix should become cancerous, it is one of the easiest possible operations to remove it subsequently by the vagina, as the writer saw Pestalozza, of Florence, do it two years ago.

Shall we curette before doing hysterectomy for fibroids? The writer does not consider it necessary, and even if necessary he does not think that it can, as a rule, be done effectively. A few years ago he was present at a hysterectomy where curetting was first performed. After the uterus had been removed the operator kindly cut it open. The cavity was much longer than the curette, and all that the latter had done was to make a number of ugly gashes, which altogether did not remove more than one-tenth part of the mucous membrane. The writer curetted in only one out of his last ten cases, and the nine not curetted recovered just the same as the curetted one. Here again comes in the motto, "Do nothing that will prolong the anesthesia, if you can avoid it."

One of the greatest advantages of Pryor's method is the avoiding of the ureters, the wounding of which is one of the most unfortunate accidents that can befall us in removing the fibroid uterus. In Pryor's method you avoid wounding the ureter on the most difficult side, where you would be most likely to wound it, because you are working from below

upward and pulling the uterus away from the ureter all the time. In fact, it seems to the writer that it would be almost impossible to wound the ureter on the most difficult side if you follow Pryor's directions. The writer has cut a ureter across in two cases, one vaginal and one abdominal, where other methods were employed; but since he has adopted Pryor's method, namely, in his last ten successive cases, this accident did not happen and all the patients recovered. In this one respect Doyen's method can claim an advantage; for from the first step, when he cuts into the posterior vaginal cul-de-sac and catches up the cervix, he is working from below upward on both sides, and is constantly working further and further away from the ureters.

But, as already mentioned, Doyen's method has the great defect of opening into the vagina, and the writer was told that, in spite of his wonderful skill as an operator, his death rate was very high compared with Kelly's mortality. From having observed several other operators in Europe, of world-wide reputation, doing Doyen's operation, he feels sure that they would have done much better with Pryor's method.

Before closing, the writer wishes to say a few words about vaginal morcellement. Although he has seen two of its greatest exponents—namely, Ségond, of Paris, and Landau, of Berlin—performing this operation several times, he felt that the operation could not be too strongly condemned. Their mortality was high, and in several of the cases any less skilful operator than they would, he felt sure, have been obliged to abandon it or have the patient die upon the table. Since then Ségond has adopted Pryor's method entirely. He frankly stated in his clinic, before the writer, that he came to America to convert us to morcellement, but was instead entirely converted to abdominal hysterectomy. It is to be hoped that Landau and the large school of operators who look to him for inspiration will soon follow Ségond's example. As far as France is concerned, Ségond wields a tremendous influence, so that we may consider it certain that Pryor's method will soon be generally adopted throughout Southern Europe.

It may have been noticed that the writer speaks of using only one material for ligatures and sewing in the abdomen, namely, catgut. He has come to adopt this material permanently, because we cannot afford to have all the success of an operation marred by a wretched little quarter inch of silk thread keeping up a fistulous track from the uterine artery up to the abdominal

incision. So little do some patients understand the proportions of perspective that this little sinus, with its two or three drops a day of pus for six months, looms up in their vision as a far greater ill than the very serious disease from which we have relieved them. We have no such trouble with catgut, and by preparing it ourselves, or by getting from Johnson, of New Brunswick, N. J., the Red Cross brand, which has been boiled in cumol, we need fear neither sepsis nor hemorrhage from the failure of the ligature.

248 BISHOP STREET, MONTREAL.

THE FREQUENCY AND SIGNIFICANCE OF INFARCTS OF THE
PLACENTA, BASED UPON THE MICROSCOPIC EXAMINATION
OF FIVE HUNDRED CONSECUTIVE PLACENTÆ.

APPEARING SIMULTANEOUSLY IN "CONTRIBUTIONS TO MEDICINE," PRESENTED TO PROF.
WILLIAM H. WELCH BY HIS STUDENTS UPON THE TWENTY-FIFTH ANNIVERSARY
OF HIS GRADUATION IN MEDICINE.

BY

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(With plates.)

ANY one who has occasion to examine a number of placentæ must be impressed with the frequent occurrence of certain degenerative changes, which are designated by many terms, but are generally grouped together as infarcts.

Placental infarcts vary very materially in their appearance, as well as in their situation and size, the most frequent varieties of which we shall describe under the following headings:

1. Small, whitish or yellowish fibrous areas, occurring either on the fetal or maternal surface of the placenta, which vary in size from areas which are hardly visible to the naked eye to those having a diameter of several centimetres. Such areas rarely attain a thickness of more than a few millimetres and are sharply marked off from the surrounding placental tissue.

2. On section through the placenta one frequently sees wedge-shaped or irregularly round areas, which are usually dull white in color and present a striated, fibrinous appearance. They are sharply marked off from the surrounding tissue, which appears to be perfectly normal.

3. More rarely, considerable portions of the placenta are involved in the process, and not infrequently one finds one or more cotyledons converted into a pale white, dense, more or less fibrous mass, in which one fails to observe the usual spongy structure of the placenta. In other instances a large portion of the placenta may be involved in the change, and one-half and sometimes a greater portion of its entire substance is occupied by the process.

4. Not infrequently one observes a broad rim of whitish or yellowish-white material, which extends for a varying distance around the margin of the fetal surface of the placenta, taking in a larger or smaller portion of its periphery and occasionally forming a complete ring around it. These bands vary from a few millimetres to three or four centimetres in breadth. They lie beneath the amnion and rarely attain a thickness of more than a few millimetres, except at the extreme margin of the placenta where it merges into the membranes. This condition is known as "placenta marginata."

In a certain number of cases the band of tissue, instead of being situated at the margin of the placenta, lies somewhere between it and the centre of the organ, thus forming a broad zone more or less parallel to the periphery, but separated from it by apparently normal placental tissue. To this condition the term "margo placentaë" is sometimes applied.

5. In rarer instances one finds a larger or smaller portion of the placenta occupied by a pinkish or brickdust-colored mass, irregularly shaped, more or less solid, and sharply marked off from the surrounding tissues. Such masses vary considerably in size and occasionally occupy a large portion of the organ. They are usually most marked on the maternal side of the placenta, but not infrequently extend through its entire thickness. To these the term "red infarcts" is occasionally applied.

Still more rarely one finds scattered through the substance of the placenta round areas varying from bright red to almost black in color, which are apparently composed almost entirely of blood, and are sharply marked off from the surrounding tissue by a capsule, which presents a more or less fibrous appearance. Such structures differ considerably in size, varying from one to two and a half or three centimetres in diameter. They may occur singly or in considerable numbers, and in rare instances the entire placenta may be studded by them, when they give it a markedly nodular appearance on external examination, and on section it presents an appearance which Pinard has aptly described as "placenta truffé."

These structures are also designated as red infarcts, though many authors prefer to speak of them as apoplexy of the placenta. They differ markedly in structure and appearance from the other form of so-called red infarcts and, as far as we can learn, have nothing in common with them.

These conditions of the placenta have probably been noted ever since physicians began to devote attention to the study of the after-birth, and an immense amount of literature has gradually developed upon the subject, which, roughly speaking, may be divided into two periods, in the latter of which (from 1880) an immense number of monographs have appeared. Unfortunately the views of the various authors have been so divergent that the immense literature has served to increase the perplexities of the average student rather than to lead to the acceptance of uniform ideas concerning the significance and mode of production of the changes under consideration.

During the past few years we have been very much interested in the subject, and, in the hope of arriving at clearer ideas concerning it, have collected five hundred successive placenta, all of which were carefully described in the fresh state and then hardened either *in toto* or in small pieces, and afterward subjected to routine microscopical examination.

In the present article it is our intention to report the results of these studies, in the hope that we may thereby arrive at satisfactory conclusions concerning the significance and mode of origin of placental infarcts. But before considering our own results, we think it would be well to consider as briefly as possible the work which has been done by others upon the subject.

History.—The first reference to infarcts of the placenta which we have been able to find in the literature was made by Mauriceau in 1668, who designated the condition as “schirrus of the placenta,” and considered that it might cause retardation of its delivery by making it more resistant, but he did not go into details concerning it. It is evident, however, from the manner in which he spoke of it, that it was a perfectly well-known condition at that time.

During the last century the condition was designated by a number of terms, those most frequently employed being schirrus, encephaloid, and tuberculosis of the placenta. With the beginning of this century other designations were introduced, and we cannot better demonstrate the confusion which prevailed concerning the subject than by giving a list of some of the more important terms which were applied to it and the

principal authors who made use of them. We do not, however, claim that the list is exhaustive: *Schirrus* (Mauriceau and Levret); *atrophy* (Cruveilhier); *placentitis* (Brachet, Wilde, Simpson, Hegar, and Maier); *hepatization* (Brachet and Scanzoni); *apoplexy* (Cruveilhier, Jacquemier, Gierse, and Meckel and Scanzoni); *hematoma* (Klebs); *phthisis* (Simpson); *fatty and fibro-fatty degeneration* (Barnes, Robin, Charpentier, and Tarnier); *Fibrin-ablagerungen, Fibrin-anhaufungen Fibrin-keile, Fibrin-gerinnungen* (Rokitansky, Spaeth and Wedl, Klob, Valenta and Eberhardt); *thrombosis* (Bustamente, Slavjansky, Rohr, Martin, and Delore); *infarct* (Ollivier, Rokitansky, Hoffmann, Ackermann, etc.); *gumma* (Zilles); *necrosis* (Clemenzenz); *hyaline degeneration of the decidua* (Jacobsohn). It is apparent from this list that there was no unanimity concerning the classification of these conditions, and a similar divergence of opinion will be found in all other points connected with them.

The statements concerning the frequency of the affection vary quite as greatly as the terminology, and we find it variously estimated by different authors at between two and one hundred per cent. Thus:

Meyer,	1889, in	344 cases found infarcts in	2	per cent
Spaeth } and } Wedl, }	1885, in 2,108	" " " "	3.2	" "
Hansen,	1890, in	300 " " " "	9 7	" "
Valenta,	1886, in 2,471	" " " "	10 8	" "
Fehling,	1891, in 2,008	" " " "	15½	" "
Rossier,	1888, in 1,194	" " " "	17½	" "
Steffeck,	1890, in —	" " " "	50	" "

and Delore, 1899, in several thousand cases found infarcts in 100 per cent

We also find a number of authors who, at widely separated periods of time, stated that infarcts were of frequent occurrence, or even occurred in the majority of all placentæ; among whom may be mentioned Cruveilhier, Gierse, Tarnier, Clemenzenz, Küstner, Jacobsohn, and others.

Turning to the consideration of the views concerning the etiology of the condition, we find that they are quite as diverse and contradictory as those concerning its terminology and frequency.

Cruveilhier designated the condition as atrophy, and believed that it resulted from the separation of the placenta from the underlying decidua, whereby the maternal vessels were lacerated and anemia of larger or smaller areas of the placenta resulted.

One of the most important of the early theories as to the etiology of the disease was advanced by Brachet in 1823, who believed that the condition was of inflammatory origin and should be designated as placentitis, and that the patches throughout the placenta represented inflammatory exudate. Similar views were likewise held by Wilde and Simpson, and at a later period by Scanzoni and Rokitsansky.

It may be remembered that Scanzoni thought that a marked similarity existed between the placental disease and pneumonia, and designated certain conditions of the placenta as hepatisation. The inflammatory nature of some of the cases, at least, was admitted by Ollivier in his article in the "*Dictionnaire de Médecine*" in 1840. Since the time of Scanzoni, however, this view has found few adherents and at present possesses only an historical interest.

Almost simultaneously with the inflammatory theory it was thought by many that infarcts were the result of the organization of hemorrhagic areas. And Cruveilhier, in his article upon apoplexy of the placenta, stated that he had observed a complete series of cases which demonstrated the transformation of the ordinary apoplexy into the pale, white fibrous areas. This doctrine was enthusiastically championed by Jacquemier in 1839, who stated that the inflammatory theory was based upon absolutely erroneous observations; and his views were accepted in their entirety by Gierse and Meckel, Klebs, Valenta, and many others, and have not been completely forsaken even at the present time. Thus we find that Schäffer considers that many of the small subchorial infarcts are the result of the organization of localized hemorrhages, and Ribemont-Dessaignes still believes that the ordinary red infarct is gradually converted into the white by a process of organization. This view, as we shall see, is not satisfactory, and was based upon the gross appearance of the lesion rather than upon histological study.

That neither the inflammatory nor hemorrhagic theories were altogether satisfactory, even at the time of their promulgation, is shown by the fact that they were not accepted by Spaeth and Wedl, who believed that the condition was the result of the deposit of excessive amounts of fibrin from the blood which was circulating through the placenta; and also by the statement of Klob in 1865 that none of the theories which had been advanced up to his time were satisfactory.

In the early fifties, Barnes stated that the conditions in question were the result of fatty degeneration, and his views have

since held almost complete sway in England and this country. In 1854 Robin stated that the essential feature of the affections consisted in a fibrosis of the chorionic villi, associated with fatty changes. Similar views were also held by Charpentier, Tarnier, and others, and the accepted terminology in France at the present time is fibro-fatty degeneration of the placenta.

Hegar and Maier in 1869 stated that the condition was due to an interstitial growth in the placenta, and likened it to cirrhosis of the liver.

In 1868 Bustamente advanced the theory that the condition was essentially thrombotic in origin, and this view finds many defenders at the present day, among whom may be mentioned Rohr, Jacobsohn, and Orth.

Among the more recent theories which have been more or less generally accepted is the one which was advanced by Ackermann in 1884, according to whom the process consists essentially in a periarteritis of the fetal vessels, with coincident coagulation necrosis of the superficial portions of the villi. As the result of the necrosis, certain substances are set free which cause coagulation of the blood in the intervillous spaces, with the consequent fusing together of larger or smaller numbers of degenerated villi by masses of fibrin. As the villous circulation becomes more and more impaired, the central portions of the villi degenerate, so that at last one finds merely the shadows of the villi matted together by fibrin.

More or less closely related with this theory is the view of Langhans that the condition is due merely to the excessive formation of canalized fibrin, which a few years previously he had described as one of the normal constituents of the placenta.

Ackermann's theory was first enunciated in 1882 in a dissertation by Hoffmann, one of his students, and still further elaborated in his own article in Virchow's *Archiv.* Band xcvi., 1884.

While we attribute to Ackermann the credit of being the first to distinctly formulate this view, it must be remembered that several other observers had noted arterial changes in the villous vessels years before him, among whom may be mentioned Robin, Maier, Tait, and Ercolani, none of whom appeared to fully appreciate their significance.

In 1891 Ackermann still further modified his views by stating that he had been in error in considering periarteritis as the cause of the superficial necrosis of the villi, and that further study had enabled him to demonstrate the presence of endarteritis as well, which he was inclined to consider the real cause

of the necrosis. He also believed that he had over-exaggerated the part played by the maternal blood, for when he wrote his first article he was not so well acquainted with the fibrinous and hyaline degenerations of necrotic cells.

His conception of the process has been more or less completely accepted by a considerable number of observers, among whom may be noted Cohn, Fehling, Wiedow, Küstner, Prinzing, Orth, Eden, and others.

For several years Ackermann's view was the prevailing one, but in 1890 its pre-eminence was assailed by the work of Steffeck, according to whom the essential feature of this condition did not consist in primary vascular changes, but was to be found in an excessive proliferation of decidual cells, which grew up around individual villi and groups of villi and so interfered with their nutrition as to cause necrosis. The arterial changes he considered could not always be demonstrated and were purely secondary when present. He believed that this method of infarct formation was not limited to the maternal portion of the placenta, where decidual tissue was abundant, but applied equally well to infarcts which were situated in the depths of the placenta or on its fetal surface. In such cases he considered that the decidual cells were derived from the decidual septa, whose circulation was exposed to marked danger of interruption, by which the impetus was given to the proliferation of the cells.

Steffeck was not the first observer to believe that the prime factor in production of the lesion was to be found in the decidua, as more or less similar views had previously been expressed by Maier, Rossier, Clemenz, and Küstner; while Veit believed that the primary cause of the affection was to be sought in an endometritis which existed before the onset of pregnancy.

A view almost identical with Steffeck's was enunciated independently by Jacobsohn in the same year; and the teachings of the former have since been accepted by a number of observers, notably Mijulieff, Schäffer, Ehrendorfer, and Von Franqué.

A certain number of observers have also thought that they could find the primary cause of the disease in changes in the maternal vessels in the decidua, which resulted in thrombosis and subsequent interference with the circulation in larger or smaller portions of the placenta. Such views were held by Rossier and Rohr, and in a modified way by Ribemont-Desaignes.

A few observers, notably Favre, Martin, and Delore, have suggested that a bacterial origin might be invoked for a certain number of cases. Favre, however, was the only one of the three to resort to cultural methods, and his results were based upon so few cases as to be without value.

The latest view as to the origin of infarcts was advanced by Elen, who accepted Ackermann's teachings in a modified way and believed that the arterial changes in the villi were the expression of old age on the part of the placenta, and that infarcts should not be regarded as a disease, but rather as a sign of senility. Forty years previously Druitt advanced a somewhat similar view, which was not, however, based upon microscopic study.

From the time of Cruveilhier many observers believed that infarcts exerted no influence upon the health of the mother and only indirectly affected the child, which began to suffer when a considerable portion of the placenta was thrown out of function by the infarct formation.

Gradually it began to be noted that fetal death occurred far more frequently when the mothers suffered from albuminuria. A little later it was discovered that the placenta of albuminuric women contained infarcts considerably more frequently than under other conditions, and an attempt was made to demonstrate a relationship between albuminuria of the mother and infarct formation on the one hand and fetal death on the other.

As far as we know, the first reference to this relationship was made by Chantreuil in 1881, who pointed out the marked fetal mortality in albuminuric patients, but failed to mention the occurrence of infarcts in such cases.

The connection between albuminuria, infarct formation, and fetal death was first distinctly advocated by Fehling in 1886, who reported the histories of six women who suffered from albuminuria during pregnancy, all of whom gave birth to dead children. Upon examining the placenta from them, he found that five presented marked white infarctions, while the sixth contained both red and white infarcts.

In the following year Rouhaud, in a Paris thesis, reported sixty cases of albuminuria occurring during pregnancy, and stated that 49 per cent of the placenta from them contained red infarcts. He also stated that dead children were born in 40 per cent of the red-infarct cases, but were extremely infrequent when the placenta was normal. He therefore argued

that the albuminuria caused the formation of red infarcts, and, when they involved the placenta sufficiently to interfere with its circulation to a considerable extent, that the children were born dead. He did not, however, attempt to explain the connection between the two processes, and failed to give a histological description of the placental lesions.

In 1888 Cohn reported 15 cases of nephritis occurring in pregnant women in Schröder's clinic in Berlin, 87 per cent of whom gave birth to dead children, and, upon examining the placenta, found that only 2 of them were normal.

In the same year Rossier reported from Fehling's clinic that he had examined 1,174 placenta, in $17\frac{1}{2}$ per cent of which infarcts were observed. Fifty-four of the women suffered from albuminuria during pregnancy, and 60 per cent of them gave birth to infarcted placenta. In other words, infarcts occurred three times more frequently when albuminuria was present. He believed that the excessive infarct formation in such cases was due to changes in the maternal vessels of the decidua, but was unable to adduce convincing evidence in support of his belief.

Varnier, almost at the same time, in a long article upon eclampsia, made similar statements, but did not give the figures upon which they were based.

Wiedow, likewise, reported 6 cases of albuminuria during pregnancy, in the placenta of all of which infarcts were observed; but, in view of the frequency of infarct formation in non-albuminuric cases, expressed a doubt as to whether albuminuria played so important a part in their production as was generally believed.

The following year (1889) Leopold Meyer, of Copenhagen, reported his observations, which were based upon the examination of the placenta from 1,124 patients, in 1.7 per cent of which he found infarcts. When the urine contained albumin but no casts, infarcts were observed in 2.2 per cent of the cases, while when both albumin and casts were demonstrated they were noted in 6.7 per cent of the cases, that is, four times more frequently than when the urine was normal. These figures differ very markedly from those of Rossier, and the cause for the difference must probably be sought in their varying conceptions as to what constituted an infarct.

In 1890 Hansen noted the occurrence of placenta marginata twenty-nine times in 300 cases (9.7 per cent), and believed that it exerted a marked influence upon the development of the

child, as, in 11 cases in which it was well marked, only one child was born whose weight and general development corresponded with the duration of pregnancy.

The following year Cagny wrote an article upon the subject, which was based upon the examination of 2,349 placentæ from Pinard's clinic in Paris, of which 171 were obtained from women who suffered from albuminuria during pregnancy, and in one-third of these he was able to demonstrate the presence of red infarcts. He also stated that only one-third of the children from these infarcted cases presented their normal weight.

In the same year Fehling made a second report upon the relation between albuminuria and infarct formation, and stated that infarct formation was observed in the placentæ of 50 out of the 91 women who suffered from albuminuria during pregnancy.

In 1892 Mijnlieff likewise referred to the subject, but did not express himself nearly so emphatically as Fehling, Rossier, or Cagny.

The latest contribution to the subject was made by Martin in 1896, who stated that he had observed infarcts in 47 per cent of the placentæ which were obtained from women suffering from albuminuria during pregnancy, and that in 67 per cent of these cases the children were either born dead or imperfectly developed.

It is accordingly apparent that the majority of investigators, who have busied themselves with this subject, believe that a marked relation exists between albuminuria on the part of the mother and infarct formation in the placenta, and that the latter exerts an appreciable influence upon the well-being of the fetus. But none of them adduce a satisfactory explanation for the part played by the albuminuria in their formation. And it is also evident that they do not agree among themselves concerning the subject; for certain of them, as Meyer for example, estimate the frequency of infarct formation in albuminuric cases at only a fraction of what other investigators observe in normal cases. This difference, however, may be more apparent than real, and may be attributed to their varying conception as to what constitutes an infarct.

Pinard is a most enthusiastic advocate of this relationship, and, when I was at his clinic, daily examined the placentæ which had been born in the previous twenty-four hours, and, whenever infarcts were present to any extent, immediately

stated that the mother had probably suffered from albuminuria, and caused her history to be investigated in that particular.

Frequency.—Turning from the work of others to our own investigations, we shall consider, in the first place, the frequency of infarct formation; and we may say in advance that we have been able to observe it, to a greater or less extent, in every full-term placenta which we have examined. In a certain number of cases, however, the areas were quite small, while in others they were visible only under the microscope.

In estimating the frequency of infarcts, we have adopted the arbitrary rule of not considering surface or central infarcts which measure less than one centimetre in diameter, and have only designated as marginal infarcts those which extended around at least one-third of the periphery of the placenta.

Applying these standards to our 500 placentæ, we found white surface or central infarcts in 243 cases (44.6 per cent), while marginal infarcts alone were observed in 77 cases (15.4 per cent). In 107 cases a combination of marginal and central or surface infarcts was noted. Including these with the uncomplicated marginal infarcts, it is found that marginal infarcts were observed in 184 cases (36.8 per cent). In 15 cases (3 per cent) red infarcts were noted. It should be noted, however, that no distinction has been made between marginal infarctions and the margo placentæ (Küstner). Upon adding together our results, we find that surface infarcts were observed in 223 cases, 44.6 per cent; pure marginal infarcts in 77 cases, 15.4 per cent; and red infarcts in 15 cases, 3 per cent, making a total of 315 cases, or 63 per cent.

On inquiring as to the appearance and situation of the infarcts, we find that the superficial white infarct occurs most frequently and is usually situated upon the fetal surface of the placenta. Next in frequency are the central, fibrinous infarcts (*Fibrin-keile*), which are situated in the substance of the placenta, and often extend to its maternal, and less frequently to its fetal, surface.

In a still smaller number of cases, we find that larger areas of the placenta are involved in the infarct formation, which sometimes extends over one or more cotyledons. In such cases the infarct usually extends upward from the maternal surface into the substance of the placenta for a considerable distance and occasionally reaches its fetal side. The red infarcts are usually central in situation, and, when they attain a

considerable size, extend through the entire thickness of the placenta.

Microscopic Structure.—Before considering in detail the microscopic structure of infarcts, we may state in advance that we have been unable to note essential difference in structure between the marginal and other varieties of infarction, with the exception of the red infarct.

In considering the microscopic structure of infarcts, we shall first study the most fully developed variety, namely, the white, fibrinous infarct, and then take up the less developed forms until the earliest stages of infarct formation are reached.

The fibrinous infarcts, which we observe in their most fully developed form in the substance of the placenta, represent the final stage of the process. On section through the fresh placenta, they present a dull white, somewhat fatty appearance, and are usually sharply marked off from the surrounding tissue, and on closer examination present a reticular structure.

Under the microscope they are seen to be composed entirely of fibrin which is made up of myriads of interlacing bands, between which no trace of the original placental tissue can be discovered, and when stained by Weigert's method they present the characteristic blue coloration.

In the vast majority of cases, however, this is not the form of infarct which we observe, for usually we meet with less developed varieties, which consist of a mass of fibrin in which are embedded numbers of more or less well-preserved villi. In many instances the stroma of the villi presents an almost normal appearance, except for the presence of more or less endarteritis. The epithelium, on the other hand, is destroyed to a great extent, and only here and there do we meet with masses of syncytium.

In other cases we find that the stroma of the villi has undergone marked changes and presents an almost fibroid appearance, which is accompanied by the disappearance of a large part of its nuclei; while in still more advanced cases almost all the nuclei have undergone degeneration, and the stroma of the villus has become converted into a structure whose component parts can be no longer distinguished, and which takes on a homogeneous pink stain with eosin.

In still other cases the degenerative changes have progressed still further, and the infarct consists of a mass of fibrin, through which are scattered a few pale, irregular areas which represent all that is left of the villi—mere shadows, as it were. This stage is clearly shown in Fig. 1.

In smaller infarcts, and not infrequently in large ones as well, we do not meet with anything like so marked changes, and usually find that the stroma presents a perfectly normal appearance, except for the arterial changes, and that the only sign of disease is to be found in the presence of a small ring of canalized tissue, which stains pink with eosin and lies just beneath the syncytium. This is identical with the tissue which Langhans first described as canalized fibrin. Here and there certain of the villi have lost the greater part of their syncytial covering and have become fused together by canalized fibrin, but are not matted together by a fibrinous network.

Occasionally we note that the infarct is composed not only of fibrin and more or less degenerated villi, but that scattered through it are irregularly shaped masses of large cells with round vesicular nuclei, which stain tolerably intensely and may present various degrees of degeneration. Such areas, when occurring alone in the centre of the placenta or near the chorionic membrane, are usually spoken of as decidual islands, and are supposed to represent sections through decidual septa; while when situated nearer the maternal surface of the placenta, they are believed to be masses of serotinal cells which have been cut through obliquely.

In considering the structure of red infarcts we must differentiate, as we pointed out in the beginning of the article, between the sharply circumscribed, more or less circular, bright or dark red infarcts, and the larger, more irregularly shaped, brick-colored masses which often extend through the entire thickness of the placenta. To the former the term apoplexy is often applied, and when they are present in any numbers the condition is sometimes designated by the French as *placenta truffé*. The latter, on the other hand, are paler, and oftentimes of a dull pink color, and on section are roughly granular and do not present the homogeneous appearance of the apoplectic masses.

We are not in a position to make definite statements concerning the dark, round infarcts (apoplexy), as we have had occasion to examine them in only a few instances, but we believe that they differ essentially from the other forms of infarcts and should not be considered among them.

The large pink infarcts, on the other hand, are closely related to the ordinary varieties of white infarcts, and differ from them only in the fact that greater numbers of red blood corpuscles are enclosed in the meshes of the fibrin network by which the degenerated villi are bound together.

In a small number of cases we meet with large structures which in fresh specimens more or less resemble large white central infarcts, but which on closer examination present a more striated appearance. Under the microscope we find that they are totally lacking in fibrin, and are made up of large numbers of completely degenerated villi which are very closely packed together, and between which we can discover no trace of either blood or fibrin. In most of the villi composing these masses the degeneration is very marked, and we only see the outlines of villi through which are scattered large quantities of nuclear débris.

These structures were designated by Eden as non-fibrinous infarcts, and according to him result from the shutting-off of a certain number of maternal vessels in the decidua, by which the blood supply to the intervillous spaces in the corresponding portions of the placenta is interfered with. As these intervillous spaces are no longer filled with blood, they collapse and the villi become closely packed together, owing to the pressure exerted by the surrounding portions of the placenta, after which they degenerate.

We have not infrequently observed such structures, but as yet are unable to express a definite opinion as to the correctness of Eden's explanation concerning their production.

Occasionally one observes in the centre of infarcts, especially of the large pink variety, cavities filled with a thick, grumous material which in fresh specimens resembles pus; and it was the presence of such cavities which led the earlier observers to believe that placentitis played so important a part in the production of infarcts. On microscopic examination, however, we find that the contents of the cavities is not pus, but is made up of cellular débris, and we believe that they are analogous to the areas of softening which are observed occasionally in ordinary thrombi.

When the infarcts contain masses of "decidual" tissue, one not infrequently notes that the latter contains cavities in its centre, which are filled with a more or less clear fluid. Upon closer examination it is apparent that this is the result of the degeneration and breaking down of certain of the cells of the mass, and such structures will be considered more in detail when we take up the question of the relation of infarcts to the formation of placental cysts.

Etiology.—Careful microscopical examination of a number of sections from each of our five hundred placentaë has led us

to believe that in the great majority of cases the main factor in the production of infarcts is to be found in arterial changes in the villous vessels. These are usually manifested as an endarteritis of an obliterative character, with which periarteritis is not infrequently associated. The changes are particularly well marked in the vessels of the medium-sized villi, but are less prominent in the large villous stems and the terminal branches of the villi.

The degree to which the lumen of the vessels is encroached upon differs markedly; in some cases there is only a slight bulging of the intima, while in others the lumen is almost obliterated.

The arterial changes are identical with those observed in obliterating endarteritis in other portions of the body, and are in no way related to those which Merttens has recently described as occurring in villi after the death of the fetus.

As the result of our studies, we have no hesitancy in confirming the statements of Ackermann, Eden, and others concerning the frequency with which these changes occur and the part which they play in the production of infarcts.

Fig. 4 gives an excellent idea of the arterial changes, and demonstrates at the same time certain of their effects, to which we shall refer later.

As the result of the interference with the arterial supply of the villi, we soon observe changes in the portion of the stroma which lies just beneath the syncytium—in other words, where the *Zellschicht* was observed in the earlier months of pregnancy. On attentive examination in suitable cases, we notice that the nuclei of the cells in question become somewhat larger, more irregular in shape, and gradually lose their ability to stain with the ordinary reagents—in other words, they undergo coagulation necrosis. A little later we notice that the protoplasm of the cells appears less well differentiated and adjacent cells fuse together, while in the intercellular spaces between them a tissue gradually makes its appearance which is analogous to Langhans' canalized fibrin.

In the earlier stages of the process the syncytium is not affected, and does not appear to undergo marked changes until a layer of canalized fibrin of considerable thickness has been formed beneath it. Such changes are well shown in Figs. 4 and 5.

In Fig. 4 we also notice that the entire stroma of the villus has taken on a somewhat fibroid appearance, contains fewer

nuclei and more intercellular substance, and stains more intensely pink with eosin than is usual. Robin and the investigators who followed him probably observed the same condition and designated it as "fibrosis."

As we have already stated, the syncytium does not become involved in the degenerative process until a later period; and it may well be asked, if the changes in question are the result of interference with the villous circulation, why the first changes are observed in the tissue directly beneath the syncytium instead of in the syncytium itself. We believe that the answer to this question is to be found in the fact that the syncytium, lying in direct contact with the maternal blood, practically serves as an endothelium for the intervillous spaces, and probably plays an important part in preparing it for transmission to the fetal vessels. It is probably nourished in large part by the maternal blood, so that it will not begin to degenerate until the condition of the tissue beneath it renders its further preservation unnecessary.

Infarct formation does not occur uniformly over the entire placenta, but is limited to larger or smaller groups of villi, so that the beginning of the process is nearly always sharply localized. Gradually, however, after a well-defined layer of canalized fibrin has been developed beneath the syncytium, we note the appearance of changes in the syncytium itself, which then undergoes coagulation necrosis, and is also converted into canalized fibrin. This, however, does not usually occur over the entire periphery of the villus, but only in localized areas. As soon as the syncytium of several adjacent villi has been replaced by canalized fibrin, the degenerated areas immediately fuse together, and we find several small villous branches united by a band of canalized fibrin, and this represents the earliest stage of infarct formation.

As the process goes on, larger and larger areas of syncytium degenerate, so that eventually we have a number of villi, a considerable portion of whose surface is covered by canalized fibrin, but which are separated one from another by the maternal blood in the intervillous spaces. In a short time fibrin ferment, or some analogous substance, is set free from the degenerated cells, and the maternal blood which lies between the degenerated villi begins to coagulate. (Fig. 3 gives a very good idea of the process.) By the coagulation of the contents of the intervillous spaces, a number of degenerated villi become firmly fused together by a mass of fibrin and a typical infarct is produced.

In the earlier periods of infarct formation the degenerative changes are limited to the periphery of the villi, and the bulk of their stroma remains unchanged. As the process goes on, however, the arterial changes become more marked, and the stroma degenerates more and more, until in well-marked cases it is represented by a mass of degenerated tissue in which individual cells cannot be distinguished. This change, we also consider, is the result of coagulation necrosis, and we believe that eventually the entire stroma will be converted into canalized fibrin, which later on will be indistinguishable from the fibrin formed by the coagulation of the maternal blood. So that finally a mass of fibrin is formed, which is derived partly from the degenerated villi and partly from the maternal blood; and such structures represent the fibrinous infarcts to which we have already referred.

In a certain number of instances, especially in infarcts which are situated at or near the margin or near the maternal surface of the placenta, the method of origin which we have just described does not appear to offer a satisfactory explanation for the phenomena observed. For in some cases we also find so-called decidual cells taking part in the formation of the infarct. Fig. 5 illustrates this condition, and in it we see a villus abutting upon the serotina, with its superficial portions converted into canalized fibrin, but about whose base are large numbers of epithelioid cells which are continuous with those of the decidua serotina and which present various stages of degeneration.

At first glance such a specimen apparently substantiates Steffek's contention concerning the decidual origin of infarcts; and this is rendered still more striking by the consideration of Fig. 2, in which we find a large area of decidua-like cells projecting from the decidua into the substance of the placenta and undergoing degenerative changes, around which are grouped a certain number of degenerated villi. This area is made up of comparatively large cells, which are distinctly epithelioid in appearance, some of which appear perfectly normal, some partially and others completely degenerated, and in places fused together into fibrin-like masses. Many of the cells stain clearly and distinctly, while in others the nuclei have lost their vesicular appearance and stain feebly; in others the nuclei have entirely disappeared and all trace of structure has disappeared from their protoplasm; and in still other places several degenerated cells have fused together, forming a mass of fibrinous material.

At first glance one naturally considers that the structure in question is simply a section through a decidual septum, and this supposition is strengthened when one finds that it is continuous with the decidua serotina. But careful study shows that there is a marked difference between the cells of the so-called septum and those situated in the deeper portions of the serotina.

No doubt Steffek saw similar specimens, and concluded from them that the initial changes in infarct formation originated in decidual (maternal) tissue.

The question we now have to consider is whether he interpreted such specimens correctly; and for our part we do not believe that he did, but consider that the majority of structures which he considered as decidual septa and islands were not such, but were composed of *Zellschicht* cells (fetal ectoderm).

Nowhere in Steffek's work, nor in the work of those who substantiate his statements, do we find mention made of the fact that the decidua serotina is not entirely of maternal origin, but contains, in its upper layers at least, large numbers of cells which are derived from the fetal ectoderm.

Nitabuch was the first observer to direct attention to this point, when she demonstrated the presence of a band of canalized fibrin in the upper part of the decidua serotina, and showed distinctly that there was a marked difference between the tissue which lay above and below it; that on the maternal side of the fibrinous layer being decidual in origin, while that on its fetal side was derived from the fetal *Zellschicht*.

More or less similar views were soon expressed by Rohr, which have since been abundantly confirmed by the work of Kastchenko, Minot, Rheinsteins-Mogoliwa, and Marchand, and we have been able to confirm their observations in all of the early placentæ which we have studied.

The work of Nitabuch demonstrated with tolerable certainty

DESCRIPTION OF PLATES.

FIG. 1.—Section through an almost fully developed infarct, showing the degenerated villi embedded in fibrin.

FIG. 2.—Section showing a so-called "decidual island" arising from the decidua serotina and projecting into the placenta.

FIG. 3.—Section showing a partially developed infarct with the formation of fibrin in an intervillous space, which is surrounded by degenerate villi.

FIG. 4.—Section through several medium-sized villi, showing marked endarteritis, and the development of canalized fibrin beneath the chorionic epithelium.

FIG. 5.—Section showing a villus abutting upon the decidua serotina, with the formation of canalized fibrin at the periphery of the villus and in the decidua.

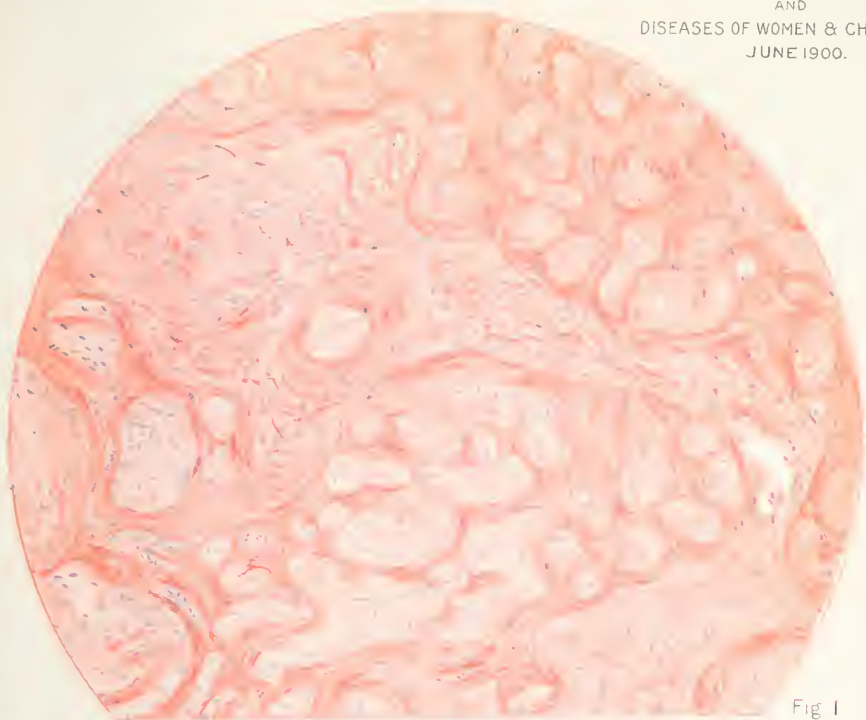


Fig 1

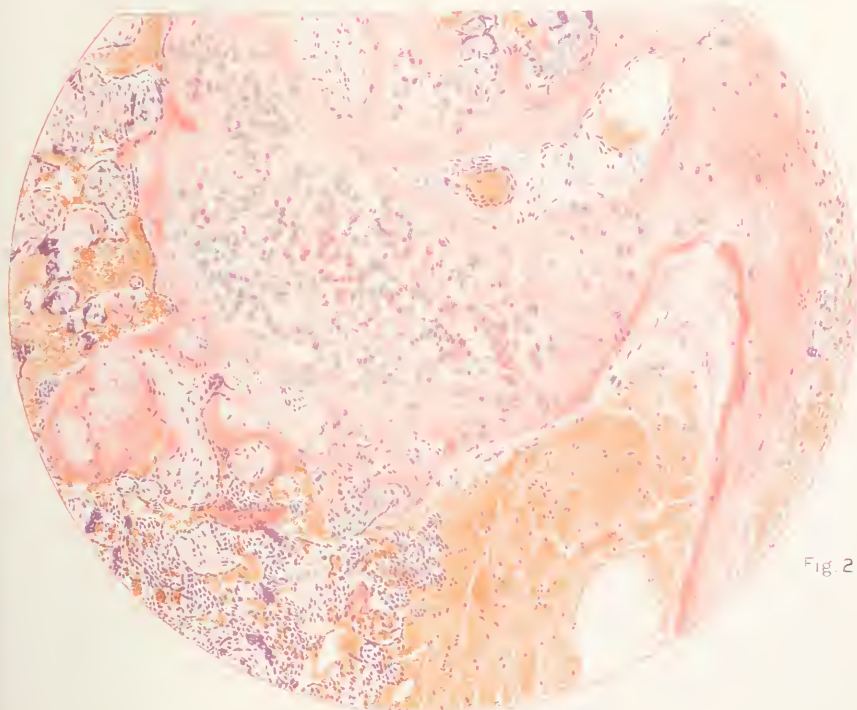


Fig 2

that the fibrinous layer in the decidua serotina was probably produced by the degeneration of *Zellschicht* cells; and it is more than probable that a large part of the tissue which thus far has been designated as decidual, whether occurring in the form of decidual septa or islands, or as a layer of cells on the maternal surface of the chorion, is of similar origin and corresponds to Langhans' *Zellschicht*.

The same idea was expressed in a modified way by Eberhardt, who, after carefully studying the formation of canalized fibrin in Langhans' laboratory, concluded that it was always derived from *Zellschicht* cells, wherever it was observed in the placenta.

The probability that a large part of the tissues which have thus far been considered as decidual are really fetal in origin has practically been converted into a certainty by the recent work of Peters, who has carefully described the earliest human ovum which has thus far been observed. In his specimen the ovum, instead of being attached to the surface of the decidua serotina, as had been previously taught, was found embedded in the serotina beneath the uterine epithelium. And he accounts for this by supposing that the ovum had become implanted upon a portion of mucosa which was denuded of its epithelium, and then burrowed its way down into the stroma of the endometrium.

In the excellent microscopic pictures which accompany his article, one finds that the entire ovum is surrounded by many layers of epithelial cells, which he has designated as trophoblast, the majority of which are sharply marked off as individual cells, though a certain number of them present a syncytial appearance. Scattered through this mass of cells are a large number of blood spaces which have resulted from the opening up of maternal capillaries by the growing trophoblast, and which we must consider as the earliest stage in the formation of the intervillous spaces. Surrounding the ovum are a number of rudimentary villi, with a distinct connective-tissue stroma, each of which is surrounded by many layers of the trophoblastic cells.

Nowhere in his specimens does one observe decidual septa growing up between these cells, and it appears highly probable to us that certain bands of the trophoblastic cells may persist until a later period, when they will appear as the structures which we now designate as decidual septa and islands, and even as Winckler's *Schlussplatte*.

Careful study of the so-called decidual islands in the full-term placenta fails, as a rule, to reveal the presence of vessels which are likewise absent from the layer of "epithelioid" cells on the fetal surface of the chorion, which were considered by Winckler and others as decidual in origin. Owing to the absence of vessels, such tissue is extremely prone to degeneration, and we believe that the initial stage in certain cases of infarct formation is afforded by their degeneration.

Eberhardt has adduced a very plausible objection to Steffek's theory that in many cases the impetus to the formation of infarcts is first given by the blood supply of a decidual septum being interfered with, by inquiring why that should make any difference, if the septa be of maternal origin, so long as they are surrounded by the maternal blood in the intervillous spaces, and pertinently asks why they should not be nourished by it quite as well as by maternal blood contained in blood vessels.

We are inclined to accept Eberhardt's views, and, as indicated above, believe that the great majority of such structures are derived from the fetal ectoderm and have nothing to do with the decidua.

If this should prove to be the case, the primary change in the production of infarcts would accordingly be nearly always found in fetal tissues, most frequently in the villi, but in a certain number of cases in the above-mentioned masses of fetal ectoderm (decidual islands and septa). This supposition appears to us to receive additional confirmation when we consider that the most frequent situation for small infarctions is on the maternal surface of the chorionic membrane, as we believe that the epithelioid cells which are found in that situation present only a superficial resemblance to decidual cells and are undoubtedly of fetal origin.

If these views be correct, the vast majority of infarcts, wherever situated, are fetal in origin, and their only maternal constituent is the fibrin which has resulted from the coagulation of the blood in the intervillous spaces.

While we believe that the views just expressed are correct in the vast majority of cases, we do not wish to be understood as absolutely denying the possibility of the process originating in some cases as Steffek has suggested, but we do not consider that the evidence which has thus far been adduced in support of his theory is satisfactory or convincing.

Turning to the consideration of red infarcts, we shall first

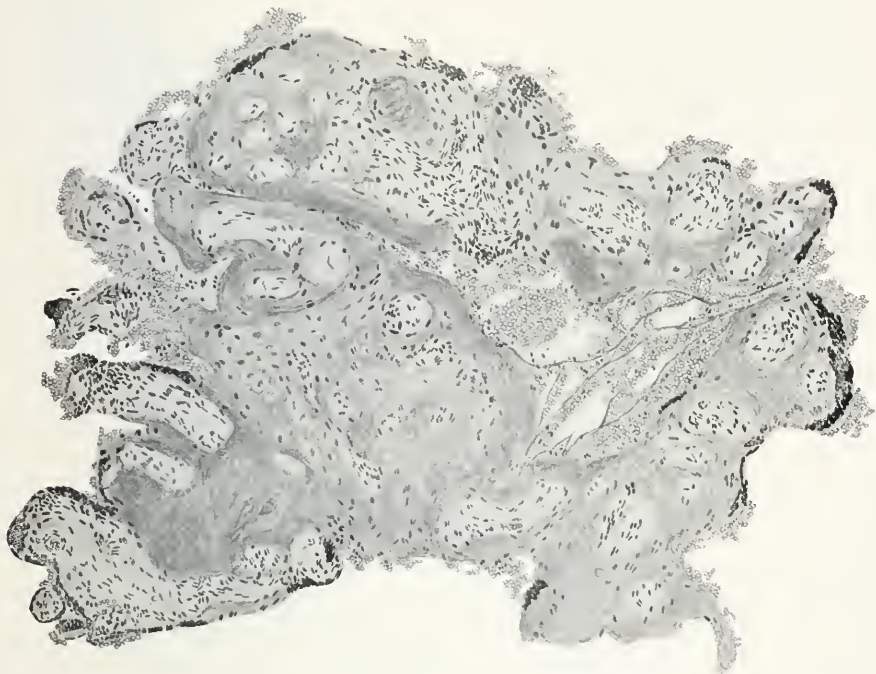


FIG. 3

K.M. Montague, Jr.

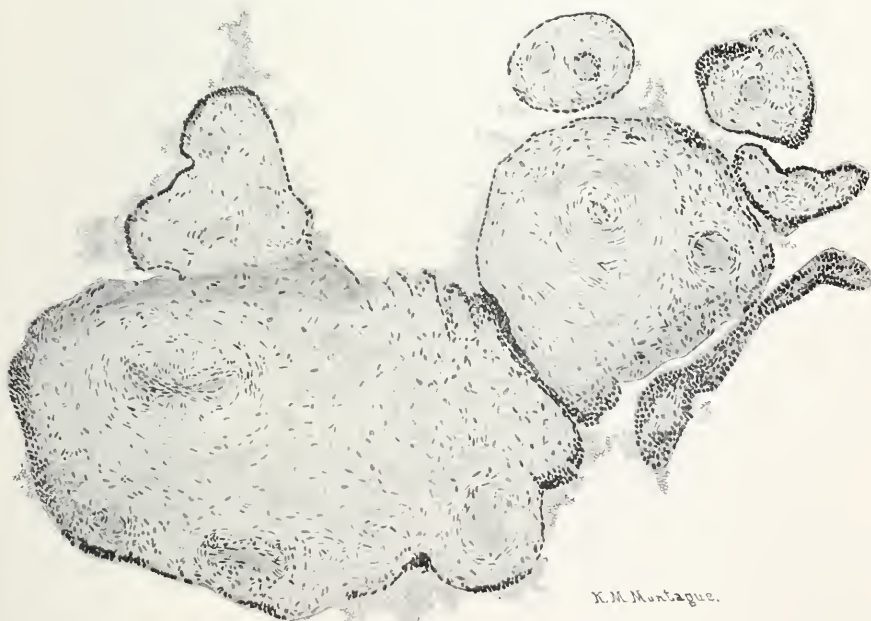


FIG. 4.

K.M. Montague.

consider the structure of the large pink infarctions, and, as far as our experience extends, we can see no marked microscopic difference between them and the usual white infarcts, except in the fact that the blood in the intervillous spaces has not become completely converted into fibrin; and we must, therefore, attribute their pink color to the presence of unchanged red blood cells in the meshes of the fibrin network. And we believe that the most satisfactory explanation for the production of such structures is to be sought in a more rapid formation of the infarct, with consequent imperfect coagulation of the blood between the individual villi which compose it.

We have not had an opportunity to examine a sufficient number of the round, dark-red infarcts, the so-called apoplexy of the placenta, to justify us in expressing definite views concerning their etiology. Numerous theories have been advanced to explain their production, but none of them appear to us to be entirely satisfactory.

Bustamente suggested that they were probably due to the occurrence of hemorrhage into an area of beginning infarct formation, so that the effused blood was poured out into the spaces bounded by degenerated and fused-together villi instead of into the ordinary intervillous spaces. This view was also adopted by Charpentier and presents a certain degree of plausibility.

We cannot, however, speak of such changes as hemorrhage into the placenta, for the reason that the intervillous spaces are, in themselves, blood vessels; and we are hardly justified in speaking of hemorrhage into blood vessels. This view has been especially elaborated by Schilling, who believes in some cases that we have to deal with a thrombosis which originates in the maternal vessels of the decidua and then gradually spreads into the intervillous spaces, involving a larger or smaller portion of the placenta.

Concerning the non-fibrinous infarcts, to which we have already alluded, we can only say that the microscopic pictures in our specimens correspond exactly to those described by Eden; but, while we can suggest no more satisfactory explanation for their production than he has advanced, we are not prepared to advocate its acceptance.

From the time of Rokitansky a certain number of observers have considered that some connection existed between infarct formation and syphilis, such views being held by Zilles, Fuoss, Prinzing, Orth, and others. We, however, have not

found that infarct formation was observed more frequently in syphilitic than in normal placentaë, and in view of their marked frequency in non-syphilitic cases we believe that we are justified in denying the existence of any relation between them.

Several observers, notably Favre, Martin, and Delore, have suggested that the presence of bacteria in the intervillous spaces may so damage the villous epithelium as to lead to its death, and thus afford the starting point for infarct formation. None of them, however, have advanced satisfactory proof of their presence, and Favre is the only investigator who has attempted to verify his theory by bacteriological research.

We have examined some twenty placentaë bacteriologically, and have found, when cultures were taken from the centre of the organ with proper precautions, that they were always sterile. As the vast majority of these placentaë contained infarctions, we believe that we are perfectly justified in denying their bacterial origin.

The part played by albuminuria in the production of infarctions, on the other hand, is not so readily disposed of, and, from the statements of the various authors which we have adduced, there appears to be but little doubt that albuminuria on the part of the mother leads in many instances to a marked increase in the number of infarctions. In our own cases we have noticed a similar relationship, and can assert that the infarcts are usually larger and more abundantly scattered through the placenta when albuminuria is present, and are more frequently of the red variety than under other circumstances.

When the symptoms were so grave as to necessitate the induction of premature labor, we have almost universally found the placenta studded with considerable numbers of large white or pink infarcts, and in the majority of such cases the children have either been born dead or have weighed less than normal.

An interesting fact in this connection is that we have been unable to ascertain that there is a marked increase in the number and size of infarctions in the placentaë of eclamptic women. The explanation for this is probably to be found in the fact that eclampsia is usually an acute affection, while the cases of albuminuria have lasted for a longer period.

We are unable to state why the number of infarctions is increased in cases of albuminuria, and it is doubtful whether the deleterious effects upon the fetus are due to the presence of



K. M. Montagu, fec.

FIG. 5.

FREQUENCY AND SIGNIFICANCE OF INFARCTS OF THE PLACENTA.—
Williams.

the infarctions or to some condition of the maternal blood. It appears to us, however, that the fetal changes can be attributed to the presence of infarctions only when they are so large or abundant as to occupy so great a portion of the placenta as to materially interfere with its circulation.

We agree with Eden that the presence of infarctions of moderate size cannot be regarded as a disease, but rather as a sign of senility of the placenta, analogous to the changes which are observed in the villi of the chorion leve at an earlier period of pregnancy. The infarct formation, however, which we observe in cases of marked albuminuria, cannot be so considered, and under such circumstances we believe that we have to deal with a disease which may exert a marked influence on the well-being of the fetus.

It is not infrequent to find calcareous deposits occurring in infarcts, though they rarely attain a large size, no matter how abundant they may be.

Nearly all the observers who have busied themselves with the study of cysts upon the fetal surface of the placenta have pointed out that infarcts could usually be found at some point in their walls, and many of them are inclined to believe that the cystic structures resulted in some way from their degeneration. These views are well reviewed in Ehrendorfer's article upon cysts of the placenta, to which we would refer those who are especially interested in the subject.

Very recently Peiser has written upon the same subject, and demonstrated, in his case at least, that the placental cyst was the result of the degeneration and liquefaction of *Zellschicht* cells which were situated in the fetal portion of the chorionic membrane, and is inclined to consider that there is no direct connection between the cyst formation and placental infarcts, but that the two processes merely represent the two extremes of the same process; and we feel that his conclusions are probably correct, especially in view of our observations upon the formation of cystic structures in infarcts which contain so-called decidual elements.

Conclusions:

1. Infarcts measuring at least one centimetre in diameter were observed in 315 out of 500 consecutive placenta (63 per cent).

2. Smaller infarcts, many just visible to the naked eye, were observed in the great majority of placenta, while microscopic examination revealed early stages of infarct formation in every full-term placenta.

3. The primary cause of infarct formation in the great majority of cases is to be found in an endarteritis of the vessels of the chorionic villi.

4. The primary result of the endarteritis is coagulation necrosis of the portions of the villi just beneath the syncytium, with subsequent formation of canalized fibrin. As the process becomes more marked the syncytium likewise degenerates and is also converted into canalized fibrin, which is followed by the coagulation of the blood in the intervillous spaces, which results in the matting together of larger or smaller groups of villi by masses of fibrin. Later the entire stroma of the villi degenerates, so that eventually the infarct consists entirely of a network of fibrin.

5. The part played by the decidua in the production of infarcts has been greatly over-estimated by many observers. It is more than probable, in many cases at least, that the tissue which they designated as decidual is really fetal ectoderm.

6. Moderate degrees of infarct formation possess no pathological significance and exert no influence upon the mother or fetus, and are to be regarded as a sign of senility of the placenta, analogous to the changes which take place in the villi of the chorion leve at an earlier period.

7. Marked infarct formation is not infrequently observed, and often results in the death or imperfect development of the fetus. It is usually associated with albuminuria on the part of the mother, though at present we cannot account satisfactorily for the relationship between them.

8. Infarct formation is not particularly marked in cases of acute eclampsia, being usually observed only in those cases which were preceded by marked albuminuric symptoms.

9. There is no evidence in favor of the bacterial origin of infarcts.

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A REVIEW OF FIVE YEARS' EXPERIENCE WITH PELVIC DISEASES AT THE VANDERBILT CLINIC.¹

BY

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LABOR AND THE PUERPERIUM.—Pelvic diseases resulting from traumatism and infection during labor or the puerperium were observed in 398 cases.

History of the Labors.—An accurate history of the labors was oftentimes hard to obtain, but any marked departure from the normal were noted, as follows: 52 were instrumental; 24 were given as hard, but were completed without instrumental or manual interference; 11 required manual interference, mostly because of abnormal presentations; 2 were complicated because of pelvic deformity.

History of the Childbeds.—Thirty-four gave a history of more or less severe puerperal fever; 6 said that they had been confined to bed at least three months after delivery. The majority gave no history of marked disturbance during their childbeds, but soon after getting up began to feel badly and had continued to suffer since. The childbed in many cases was short (less than a week) on account of the necessity of resuming their work.

The cases are divided for the purposes of description into two classes—traumatic and congestive or inflammatory.

Traumatic Cases.—There are classified under this heading all cases in which injuries, either alone or associated with displacements and congestions, existed to such a degree that operations for their relief were deemed necessary. They numbered 194, and are given according to the location and extent of the injury and the associated lesions, as follows:

1. *Lacerations of the Cervix.*

(a)	With uterine changes alone	35
(b)	“ more or less general parametritis	9
(c)	“ parametritis limited to utero-sacral folds	3
(d)	“ salpingo-oöphoritis	6
(e)	“ laceration of the vaginal vault	6

¹ Continued from p. 660, May JOURNAL.

2. <i>Lacerations of the Cervix and Incomplete Lacerations of the Perineum.</i>	
(a) With uterine changes alone	28
(b) " more or less general parametritis.....	6
(c) " cystocele.....	4
(d) " cystocele and rectocele.....	3
(e) With cystocele and rectocele and considerable uterine prolapse.....	4
	—
	45
3. <i>Incomplete Lacerations of the Perineum.</i>	
(a) Without other lesions	31
(b) With partial prolapsus uteri, cystocele and rectocele not marked.....	14
(c) With partial prolapsus uteri, cystocele and rectocele marked.	6
(d) " cystocele alone	4
(e) " rectocele alone	1
(f) " salpingo-oöphoritis	3
	—
	59
4. <i>Complete Lacerations of the Perineum.</i>	
(a) Without other lesions.....	5
(b) With cystocele alone.	3
(c) " cystocele and rectocele and partial prolapsus uteri....	1
(d) " laceration of the cervix	5
(e) " " " " and parametritis.....	1
(f) " pyosalpinx.....	1
(g) " recto-vaginal fistula....	1
(h) " urethro-vaginal fistula ...	1
	—
	18
5. <i>Complete Prolapse of the Uterus</i>	12
6. <i>Complete Prolapse of the Vagina (Uterus in Normal Position)</i>	1

Lacerations of the Cervix.—No attempt has been made to accurately classify the locations of the tears. Bilateral laceration was certainly the most frequent and more often deeper upon the left side. The pernicious effect of this lesion upon the uterus is shown in the general summary. Twenty-two patients had been operated upon before coming to the Clinic; in 16 no union, or very faulty union, had resulted, and in 6, although union was perfect, there were evidences of inflammatory deposits in the appendages, which, from the histories that were given, appeared to have existed, in the majority of the cases, prior to the time of the operations. Failure to recognize such involvement, and poor judgment of the actual condition of the cervix, seemed to be the cause of the imperfect results.

Lacerations of the Perineum.—*Incomplete.* Only those

cases have been noted in which some portions of the levator ani were injured sufficiently to cause relaxation of the pelvic floor. An important characteristic of these lesions was the frequent internal and lateral location of the tear, while the superficial skin perineum appeared externally longer than in normal cases. The two external signs that were diagnostic of this internal relaxation were the flattening of the anal cleft and the dropping of the anus. The frequent failure to recognize the importance of such injuries at the time of occurrence is shown by the fact that there were only 8 patients upon whom the primary operation had been performed.

Complete. One-half of the labors in which this accident happened were instrumental; but it would not seem to any one skilled in obstetrics that the use of forceps should be an etiological factor. The absence of prolapse of the uterus in all of the cases except one attests to the superficial character of the injury, so far as the structures of the pelvic floor are concerned. In the one exception a deep lateral tear ran high up into the left lateral sulcus of the vagina, which might have been the result of a previous labor. Nature's effort to repair the injury by a bridge of scar tissue across the apex of the tear was shown in all except 2 cases; 4 had already been operated upon, 2 with no union at all as a result, and in the others the entire perineum, excepting the ends of the sphincter ani muscle, had united.

Complete Prolapse of the Uterus.—The occurrence of this condition is shown in the following table:

Age.	Child.	Miscarriage.	Labors.
48	VII.	1	All very easy.
60	VI.	0	Normal.
52	VIII.	1	Normal.
40	V.	0	Normal.
37	V.	0	Instrumental, first.
32	IV.	1	Normal.
27	I.	1	Normal.
40	I.	0	Normal.
41	VII.	1	Instrumental, first.
40	II.	1	Normal.
44	VII.	1	Normal.
23	I.	0	Premature at eight months.

The usual conditions associated with this lesion—namely, appearance in the latter half of life, and frequent child-bearing—are demonstrated. Added to these conditions were short

childbeds in 8 and hard work in most of them. It was possible to relieve 3 by the introduction of a round hard-rubber ring.

Fistulæ.—Vaginal fistulæ were present in 2 cases—one, recto-vaginal; the other, urethro-vaginal. The early use of the forceps probably accounts for the rarity of this accident at the present time, as continuous pressure of the head, due to its failure to recede between the pains, is generally conceded to be the chief factor in the causation of such conditions.

Congestive or Inflammatory Cases.—There are included in this series all cases whose pelvic organs either showed no signs of the injuries that frequently occur in labor, or, if present, were so slight that repair of them by operation was deemed unnecessary. It is not thus intended to exclude injuries entirely as etiological factors. Two hundred and four such patients were observed, whose pelvic organs presented the following lesions.

1. *Subinvolution.*—In this class are included only those cases of chronic congestion and enlargement of the uterus without lesions in the appendages, and, as indicated, excludes all with marked injuries to the cervix or pelvic floor.

There were 76 lesions of this kind, in 41 of which the uterus was displaced backward; in the other 35 the uterus, although enlarged and partially prolapsed, was markedly anteverted. The majority of these cases had been of comparatively short duration, and, in general, represent the class of pelvic disorders first seen and treated by the general practitioner.

No more important type, from the standpoint of ambulatory therapy, can be considered. They offer the strongest temptation to intrauterine treatment of any class, because instruments are so readily introduced through the usually patulous internal os. When a physician says that the uterine cavity measures $3\frac{1}{2}$ or 4 inches, it may very properly be asked under what conditions of asepsis he obtained this information. It is highly probable that many of the parametritic deposits and tubal inflammations with displaced and adherent uteri were caused in this way from cases of simple subinvolution.

The writer's treatment of this class has practically excluded all forms of intrauterine examination and manipulation. Blood-letting of the cervix, the use of tampons and hot water, followed in a few weeks or months by the introduction of an Albert Smith retroversion pessary, has afforded relief in most instances. Those cases that gave the symptoms of a well-

marked simple, usually hypertrophic endometritis, secondary to the pelvic congestion and displacements, were referred to the hospital for curettage under an anesthetic before treatment at the Clinic was begun.

2. *Hyperinvolution*.—Well-marked examples of this condition were noted infrequently. Two cases gave a history of syphilis; 5 had suffered from extensive lacerations of the cervix and vagina, the resulting cicatrices of which were thought to stand in some causal relation. No cause could be found in one case, and the symptoms, scanty and painful menstruation, were not relieved.

3. *Pelvic Cellulitis or Parametritis*.—Thirty-seven patients were noted in whom parametritis was thought to be the chief lesion. The inflammation was mostly located in the cellular tissue behind and to the sides of the lower uterine segment. The comparative infrequency of marked retroversions (occurring in only 4 cases) may possibly be explained by this location of the inflammatory deposit, the subsequent contractions of which pull the cervix backward and the fundus forward. Well defined limitation of the infiltration to the utero-sacral folds, with marked retrocession and antelexion of the uterus produced by contractions of these folds, was frequently noted. A very marked example of posterior parametritis was observed in a woman with a slightly flattened pelvis, all of whose labors had been hard and complicated. A large mass, almost as hard as bone, was found behind the uterus and apparently firmly attached to the sacrum; a diagnosis, in fact, of sarcoma of the sacrum had been made in a large clinic a few weeks previously. Under rest and local treatment the tumor entirely disappeared in the course of three months.

The chief physical signs in these cases of parametritis were hardness, irregularity of outline, proximity and adherence to the uterus.

The long duration of many of the cases before applying for relief added greatly to the difficulties of treatment. However, the majority, with proper advice as to rest, attention to the bowels, and local treatment consisting of counter-irritation of the vaginal fornices with iodine, the use of tampons, and the application of heat by means of large quantities of hot water, became perfectly well. The administration of the iodides seemed to hasten the absorption of the infiltrations in some cases. The most perfect lesions were those that were closely limited to the utero-sacral folds, but the chief symptom, pain in the back, was very often, temporarily at least, relieved.

4. *Salpingo-oöphoritis*.—There are classed under this heading all cases in which the infection, either by direct continuity of mucous membranes or through the lymphatics and blood vessels, had caused inflammations limited to the tubes and ovaries and surrounding peritoneum, but with no tumor formation. Seventy such cases, in 29 of which the uterus was displaced backward and adherent to the diseased tubes and ovaries, were seen.

The physical signs differed chiefly from those present in the cases of cellular invasion by the more definite and distinct isolation of the thickenings from the uterine body.

The treatment, although not productive of the same perfect results as in parametritis, was in general successful and consisted of the same local measures as were adopted in those cases.

5. *Pelvic Abscess*.—Thirteen cases of pelvic abscess resulting from puerperal infection were noted, all of which were judged to be either cases of pyosalpinx or tubo-ovarian abscess. No collections of pus situated extraperitoneally between the layers of the broad ligament were seen, although several have been observed by the writer outside of the Clinic. The tumors formed by these abscesses were situated behind the uterus in 10 cases, and in the majority, as demonstrated by operations, both appendages were involved.

All of the patients except one had been sick two years; in one case eleven years had elapsed since the beginning of the disease. Three cases with the largest collections of pus had complained of symptoms a surprisingly short time, although the lesions must have existed for a long period.

MISCARRIAGES.—There were 123 patients whose symptoms began at the time of, or soon after, a premature interruption of pregnancy. It does not appear, however, if we consider their relative frequency, that miscarriages result in pelvic disease more frequently than do full-term labors. Among 1,224 married women 3,227 pregnancies occurred, of which 813, or a trifle more than 25 per cent, terminated prematurely; 716 occurred before the fourth month.

Causes of the Miscarriages.—Thirty-six of the patients admitted that they had been induced; 6 were undoubtedly due to syphilis; endometritis, it was thought, caused 21; injuries during previous labors were considered to be etiological factors in 33, of which 6 with extensive lacerations of the cervix may be especially mentioned; a fall or blow seemed to have brought on 4, and in the remaining 9 no reason could be assigned.

Pathological Results.—The lesions, as shown by bimanual examination, were of the same general character as those observed after full-term labors, except that in most instances they were not so marked, because they had not existed so long.

The uterus alone seemed to be the seat of pathological change in 48. Retained secundines, or subinvolution with or without a marked endometritis, represented the lesions.

Parametritis existed in 21 cases, in 7 of which it was limited to the utero-sacral folds.

Tubal and ovarian inflammations without distinct tumor formation were present in 33, many of which subsided under rest and treatment; it is probable that others developed later in pus sacs.

Twelve were noted with signs of pus in the pelvis, but, as in the cases following full-term labors, no pus was judged to be located in the extraperitoneal cellular tissue.

DISTURBANCES DURING PREGNANCY.—There were 133 pregnant women, 66 of whom came to the Clinic because they were uncertain as to the cause of their amenorrhea. The others presented themselves for the following reasons: excessive leucorrhea, 9; pain, 31; hemorrhage, 12; obstinate vomiting, 3; secondary syphilis, 3; cystitis, 1; frequent micturition, 8.

Pain.—The following conditions were found to be the cause of their pains: constipation, 9; threatened miscarriage, 5; extrauterine pregnancy, 3; posterior parametritis, 2; cyst-adenoma ovarii, 1; varicose vulva, 1; varicose veins of leg, 1; endocervicitis, 4; uterine displacements, 2; umbilical hernia, 1; phlebitis, 1.

Extrauterine Pregnancy.—The diagnosis of this condition was confirmed by operations in 2 of the 3 cases; in the one without operation, the rupture had occurred into the broad ligament, and the history and physical signs were so evident that it was hardly possible to mistake it. The cases upon which operations were performed showed a large mass of blood clot in the posterior cul-de-sac, the result in one case of a ruptured tube, and in the other of a tubal abortion. All of the cases gave a history of previous pelvic disease; one had had the right appendage removed two years previously for pyosalpinx.

Uterine Hemorrhage during Pregnancy.—Of the 12 cases in which hemorrhage was the chief symptom, 6 were due to threatened abortions, 4 to endocervicitis with laceration of the cervix and ectropion, and 2 to a dead fetus. In addition to

these cases there were 7 pregnant women who gave a history of regular menstruation during the first three months of their pregnancies. It appeared from their histories that its occurrence was favored by a previous unhealthy condition of the endometrium.

NEW GROWTHS.—There were 88 cases in which new growths arising from the pelvic organs were present. Their occurrence and nature were as follows: fibromyoma of the uterus, 62; carcinoma of the uterus, 10; cyst-adenoma of the ovary, 7; fibrosarcoma of the ovary, 2; dermoid of the ovary, 2; papilloma of the ovary, 1; papilloma of the vagina, 1; broad-ligament cysts, 3; total, 88.

Fibromyoma Uteri.—The greater frequency of uterine fibroids, compared with other pelvic tumors, is well shown in these cases. Fifty-nine of the women were married; 26 occurred in colored women. The relative infrequency of their appearance, to an appreciable size at least, in early life is shown by the following table: under 20 years, 1; 20 to 25 years, 6; 25 to 30 years, 13; 35 to 40 years, 9; 40 to 50 years, 9; over 50 years, 9.

Relation of Fibromyomata to Sterility.—The etiological relation of fibroids to sterility was illustrated by the 59 married women with such tumors; 28 were absolutely sterile; 3 had no children and 1 miscarriage; 17 had 1 child and no miscarriages; 8 only had more than 2 children. These women had a total of 95 pregnancies, of which 37 terminated in the early months. If we compare these figures with those of 1,224 married women who came to the Clinic with all sorts of pelvic disease, we find that the women with fibroids had one-half as many children and one-third more miscarriages.

Location of the Tumors.—The tumors were so large and numerous in 27 cases that observations of their particular locality in the uterus could not be made; in the others, however, one tumor only could be appreciated, and its location in the uterine wall was as follows: anterior wall 6, 3 pedunculated; posterior wall 10, none pedunculated; lateral wall 4, 3 on left side; fundus 14, 2 pedunculated; submucous 1, protruding from the cervix.

Symptoms.—Menorrhagia, either alone or associated with other symptoms, occurred in 40. Pain of varying kind and intensity, usually of the menstrual type, occurred as a chief symptom in 37. Interference with the function of the bladder occurred in 14, with the rectum in 9. Increasing size of the

abdomen was the only symptom in 3; uterine discharge, of leucorrhœal character, in 2. Two patients applied for examination because of sterility.

Relation to Menopause.—Although the number of observations has been comparatively small, it is a growing belief that many more cases than are generally supposed do not stop growing at this period of life, but, on the contrary, grow faster, associated in some instances with malignant changes, especially sarcoma. Two such cases have occurred within a year in the practice of one of the physicians connected with the Clinic.

Treatment.—Treatment in the Clinic was limited, of course, to the few cases in which mild pains and hemorrhages occurred. The combination of *ergot* and *hydrastis canadensis* did considerable good in many; vaginal tampons and proper regulation of the bowels helped the pains of others. Radical operations for their removal were advised in 23 instances.

CARCINOMA UTERI.—The 10 patients in whom this lesion appeared ranged in their ages from 33 to 56. All except one were married and had been pregnant. Six had had five or more children. The cervix was first involved in 7, and in 3 the growth had begun in the body. It is the opinion of the writer that cancer of the body is relatively more frequent than the literature would lead one to infer. Systematic microscopical examinations of curettings will probably demonstrate the truth of this opinion.

The extent to which the new growth had advanced when the patients first appeared at the Clinic was the most important fact demonstrated by these cases. Six of the cervix and one of the body were judged to be inoperable because of the fixity of the uterus and the involvement of the vaginal walls. Large, cauliflower masses represented the lesions of these cases. A hard and irregular ulcer, limited to the posterior lip, was the only sign of the growth in one case, which was promptly referred to the hospital for operation.

Symptoms.—Hemorrhage, discharge, and pain were the essential symptoms. Irregular bleeding was the first symptom noted by 8 of the patients, an offensive watery discharge by 1, and pain by 1. Four had previously consulted physicians, who had dismissed them without an examination.

OVARIAN TUMORS.—Tumors arising from the ovaries were seen in 15 cases, as follows: cyst-adenomata, 7; broad-ligament cysts, 3; papillomata of the ovary, 1; fibrosarcomata, 2; dermoids, 2.

Diagnosis of Pelvic Tumors.—The following physical signs were found to be useful in diagnosing the origin and location of pelvic tumors, especially of those which were large enough to be appreciated through the abdominal wall:

1. The inability, if it were of pelvic origin, to insert the hands into the pelvic cavity below the tumor and to lift it upward into the abdominal cavity.

2. Movement of a tumor by the abdominal hand also moved the cervix if it were of uterine or ovarian origin.

3. The uterus was always below and behind the tumor if it came from the cortex of the ovary.

4. Cystic tumors in the pelvis, if the uterus were markedly in front and to one side, were always located in the broad ligament; a double pyosalpinx and hematoceles offered exceptions to this rule.

Cyst-adenomata Ovarii.—All of these tumors occurred in comparatively young women; the eldest was 36.

The symptoms were few and of recent origin, except one case in which enlargement of the abdomen had been noticed for eight years; in 3 this was the only symptom present. Menstruation was usually scanty; 2 suffered from severe dysmenorrhea, and none of them had menorrhagia. The uterus in all was small and behind the tumor.

There is included in this list of tumors one case which differed anatomically from the others. It was that of a large cystic tumor occurring in a single woman, 25 years of age, who had been suffering for five months from metrorrhagia and enlargement of the abdomen. Unusual difficulties in diagnosis were encountered, as the tumor seemed so ill-defined; its origin even from the pelvis was uncertain. It was found at the operation to be a large tumor of the left ovary, and consisted of a multitude of small, thin-walled cysts; no common cyst wall existed, but they were loosely joined together and resembled a large bunch of grapes. The contents of the cysts varied from thick colloid material to thin straw-colored serum. The other ovary was filled with calcified tubercles. The case resembled somewhat two cases described by Olshausen,²³ of which he said he could only find one case recorded in the literature. A histological examination, unfortunately, was not made. The patient was seen recently, three years after the operation, and has remained perfectly well.

Broad-ligament Cysts.—Those cases in which the tumors were situated between the layers of the broad ligaments presented no special features outside of those generally character-

istic of tumors in that position. The uterus was invariably pushed up in front of the tumor and to one side. The symptoms were mostly the result of pressure, especially upon the bladder and rectum. One case came to the Clinic because of retention of urine; the other case occurred in a woman who had had both tubes and ovaries removed three years previously for double pyosalpinx.

Papillomata of the Ovary.—One example of this condition was diagnosticated in a patient, 54 years of age, who had had a laparotomy performed two years previously, presumably for the same condition as now exists. A large ventral hernia existed, through which a mass of papillomata could be distinctly felt, choking the entire pelvis. She had lost flesh and strength, and was so cachectic that it was evidently malignant and too far advanced for further operative procedures.

Solid Tumors of the Ovary.—Both cases of this kind showed the same histological structures of the tumors, fibrosarcoma; in both the disease was limited to one ovary; they were both of about the size of a large orange; in neither case was there any ascitic fluid; but the ages of the patients in whom they occurred were very different. One appeared in a married woman, 23 years of age, who had only menstruated once, with extreme pain, about two months before she came to the Clinic; she came, in fact, because of the amenorrhea. The other patient was 62 years old and had always been healthy until shortly after the menopause, which occurred ten years before. Since then she had suffered from bearing-down pains in the abdomen, especially in the left iliac region. Partial prolapse of the uterus existed, and a solid tumor, freely movable, could be felt to the left and distinctly isolated from the uterus. She was kept under observation for two years. Although the tumor did not increase perceptibly in size, it frequently became jammed in the pelvis and caused severe pain. A slight discharge of blood from the uterus occurred finally, and the uterus and tumor were removed. The uterine cavity was slightly enlarged and the mucosa very much thickened. Histologically it presented the most marked example of adenomatous hyperplasia that the writer has ever seen; it almost corresponded to the condition that has been termed malignant adenoma. Coincident with this case the writer had an opportunity to examine a uterus which had been removed from a patient with a carcinoma of the left ovary. An identical histological structure of the mucosa was found.

Dermoids of the Ovary.—Two cases, in both of which the diagnosis was confirmed by operation, were seen.

Their respective ages were 35 and 42. The situation of the tumor was the same in both instances—namely, low down in Douglas' cul-de-sac. The diagnoses were made on the marked irregularity in the consistence of the different portions of the tumors, upon their extreme sensitiveness, upon their fixity in the pelvis, and upon the histories of attacks of pelvic peritonitis and the absence of any infection to cause such attacks.

Papilloma of the Vagina.—The isolated example of this condition was found in a woman, 60 years of age, who had worn a round hard-rubber pessary without removal for several years. The pessary, which was present at the time of the examination, had to be excised from the vagina. The tumor was situated in the posterior vaginal wall near the vault and was not continuous with the cervix. It was thought to be an epithelioma of the vaginal wall, but after removal a histological examination showed it to be a simple papilloma.

TUBERCULOSIS.—Observations of genito-urinary tuberculosis were very few. Amenorrhea associated with pulmonary tuberculosis has been mentioned in the review of the causes of amenorrhea in young women. Six patients who were suffering from pulmonary tuberculosis had symptoms of endometritis, which it was reasonable to suppose, by exclusion of other causes, were due to a secondary tuberculous infection. Examinations, however, for the presence of tubercle bacilli were not made.

One case—not among the writer's own patients, however—a young colored woman, was seen who had an ulceration of the cervix, which proved to be tuberculous and represented, apparently, the primary lesion of the disease. A tuberculous salpingitis was also found at the operation.

Tuberculous cystitis occurred in 2 cases. One patient, single, 25 years of age, had had a tuberculous disease of the spine for several years. Symptoms of cystitis had recently appeared, and examination of the urine revealed the presence of tubercle bacilli. The patient disappeared from observation after the first examination.

The second case occurred in a young Cuban woman. The bladder could be distinctly palpated because of the marked thickening of its walls. Irrigation of the bladder and injections of iodoform and glycerin distinctly improved the symptoms, but were not continued sufficiently long to accomplish a per-

manent effect, as the patient failed to return for treatment. One year afterward the patient returned, four months advanced in pregnancy. She said that she had remained fairly well until pregnancy occurred; since then the bladder symptoms had been much worse, and in addition cough with considerable loss of flesh occurred. Examination showed both lungs to be involved and her general condition much worse than when first seen one year previously.

POST-OPERATIVE CASES.—There are included under this heading patients upon whom operations had been previously performed, but who appeared for treatment on account of the persistence of symptoms. Seventy-three such cases presented themselves, which may be classified according to the nature of the operation, as follows: laparotomy for pelvic inflammations and new growths; operations for uterine displacements; trachelorrhaphy; curettage; perineorrhaphy; dilatation of the cervix; removal of submucous fibromyomata.

Laparotomy for Pelvic Inflammations and New Growths.—The lesions that existed after such operations were the following: 5 cases of ventral hernia which had appeared from four months to two years after the operations; 2 cases of pyosalpinx which had been previously operated upon for the same condition of the other side; 3 cases of pelvic cellulitis about the stumps which had been left after double salpingo-oöphorectomy; 1 case of tubal gestation from which the right tube and ovary had been removed for abscess; 3 cases of endometritis; 1 recurrent papillomatous growth; 1 case of extreme atrophy of the vagina and external genitals following a double oöphorectomy; 1 broad-ligament cyst in a case from which both tubes and ovaries had been removed two years previously for double pyosalpinx; 9 cases of neuroses of various kinds following the removal of both tubes and ovaries.

Improvement in surgical technique, especially in the more accurate apposition of the abdominal wall, and possibly in the more frequent removal of the uterus in cases of suppurative inflammations of the uterine appendages, may account for the fact that fewer sequelæ of abdominal operations are seen each year at the Clinic.

Trachelorrhaphy.—The following lesions were found in the 16 patients who had undergone this operation: complete failure in 5; severe dysmenorrhea since the operation in 4; salpingitis in 3; parametritis in 4; pregnancy in 1 patient who had not menstruated since the operation, and whose cervix appeared

to be normal. Some of these lesions were probably present at the time of the operations, and in themselves should have been contraindications to their performance.

Operations for Uterine Displacement.—There were 4 cases of complete procidentia upon which plastic operations had been unsuccessfully performed; in 1 case, although the uterus had been also removed, there was still complete prolapse of the vaginal walls.

Alexander's Operation.—The results of this operation were seen in 5 cases, as follows: (1) uterus partially prolapsed; (2) (3) (4) uterus markedly anteverted and fixed by a posterior parametritis; (5) uterus in normal position and movable, but patient complained of pain in both scars and frequent micturition.

Anterior Vaginal Fixation.—In the only case following this operation the uterus was sharply retroflexed.

Ventral Fixation.—Two cases. after this operation, presented good anatomical results, but the symptoms continued.

Perineorrhaphy.—The operation, excluding primary suturing, had been performed in 12 cases with poor results; in 3 complete lacerations existed, in 1 of which two operations had been tried. The cause of the failure seemed in most cases to be a failure to recognize the exact location of the tears, which were usually in the lateral sulci.

Curettage.—Nineteen patients had been either simply dilated or dilated and curetted. The following lesions were found: parametritis in 2; salpingitis in 3; retroversion in 1; persistent menorrhagia and discharge in 3; profuse bleeding four days after operation; tubal pregnancy. Simple dilatation for sterility had been successful in 2 cases. It seems certain that many of these cases had been done without proper preparation, as most of them had been done at their homes and without the aid of an anesthetic.

Amputation of the Cervix.—Three cases following this operation presented the following conditions: posterior parametritis; severe dysmenorrhea since operation; recurrence of a cancer performed four months previously.

Removal of Submucous Fibromyomata.—Of the 3 patients who had this operation performed, 2 had other fibroids that were giving symptoms; 1 was suffering from a well-marked posterior parametritis.

SYPHILITIC AND CHANCROIDAL LESIONS.—Syphilitic lesions of the genitals were observed in 47 patients: 16 of

these represented primary lesions, 14 of which appeared as simple abrasions, without induration, near the posterior fourchette. The diagnosis was made only upon the appearance of a subsequent general eruption. Both of the hard and typical chancres were differently located—one upon the right labium majus, the other upon the cervix. The latter lesion was thought to be a cancer, but secondary symptoms followed and the lesion disappeared with syphilitic treatment.

Broad condylomata were seen in 7 cases of old syphilis. Mucous patches in 26 cases represented the most frequent lesion. The frequency of these lesions may possibly be due to the frequent presence of irritating vaginal discharges.

Chancroid.—Chancroid was a comparatively frequent lesion, but the records of such cases were very incomplete. They most often appeared as a double row of ulcerations along the mucous edges of the vulva, each ulcer having a corresponding one upon the other side. Typical phagedenic chancroid was observed in one case. Its location was at the upper part of the right labium minus, and the destruction of tissue was already well marked at the time of the first examination.

MISCELLANEOUS CASES.—Serious pelvic diseases due to causes other than infection, traumatism during labor, errors of development, and new growths, were rarely observed. Many cases of such origin, however, were frequently injuriously affected by other conditions, as constipation, over-exercise, and injuries, especially those caused by unclean and awkwardly used instruments.

Exposure to Cold.—Catching cold, chiefly at menstrual periods, was frequently offered by the patients as the beginning of their symptoms. Many such cases were found to be pregnant, but there were 5 in which uterine or ovarian congestions existed and which were undoubtedly due to this cause. They were mostly transitory and the symptoms soon disappeared. There was one case, however, of purulent salpingitis in which no other cause but exposure during a menstrual period could possibly be assigned. It occurred in a young woman, whose tubes were enlarged and filled with pus. It was thought at the operation that they were tuberculous, but a microscopical examination of many sections of both the tubes and the ovaries showed only the changes of a chronic inflammation, and no tubercle bacilli could be demonstrated.

Constipation.—Although constipation was rarely absent in all varieties of pelvic disease, it was considered as the

essential cause in many cases, especially of uterine and ovarian congestion. Thirteen such cases were specially observed, in which relief from the constipation caused a prompt disappearance of the pelvic symptoms.

Hard Work and Over-exercise.—Such conditions, too, were a frequent cause, if the patient's own deductions were accepted, but they were deemed to be the essential cause in comparatively few instances.

Two cases of complete prolapse of the uterus were observed in women who had never been pregnant. One occurred in an old woman who had been obliged to work excessively hard all of her life. The other was present in a young woman who had been accustomed to carry heavy pails of water. She had a justo-major pelvis and appeared to be unusually strong and robust.

Uterine displacements, with prolapse of one or both ovaries, were observed in 7 cases in which severe exertion immediately preceded their symptoms.

1730 BROADWAY.

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AN IMPROVED VESICAL SPECULUM.

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(With five illustrations.)

I HAVE recently modified and improved the vesical specula which I first described in the *Johns Hopkins Hospital Bulletin* for December, 1893, and in *THE AMERICAN JOURNAL OF OBSTETRICS* in January, 1894, and again in *THE AMERICAN JOURNAL OF OBSTETRICS*, July, 1894, page 85.

From a practical standpoint the speculum consists of two parts: a handle, and a tube constituting the cystoscope proper. The handle, as I have pointed out, should be made large enough to afford a convenient grasp for the whole hand, and to this end should not be less than 11 centimetres long by 2.5 centimetres in width, and 1.5 centimetres in thickness—that is to say, considerably larger even than the enlarged handle figured in the last reference.

The open tube, the essential part of the speculum, consists topographically of two parts, a urethral segment and a vulvar segment. The urethral portion, which lies within the urethra and the bladder, must be at least 5 centimetres long, so as to allow about 2 centimetres for the vesical portion, which projects into the bladder just far enough to facilitate the utmost freedom of manipulation in turning the speculum from side to side in inspecting the bladder walls. If the vesical portion is too short, the end of the speculum is apt to slip out a little, or the edge of the urethra catches over the end when the speculum is turned to an extreme degree up or down or to one side in viewing the circumurethral (especially retrosymphiseal) area.

While the speculum must be made longer than the urethra, in order that it may project well into the bladder, on the other hand, owing to the projection of the vulva and the buttocks beyond the urethra on the outside, from 3 to 5 centimetres more must be added to the length for the vulvar portion, in order to prevent the tissues lying laterally from projecting over the orifice and narrowing the field of vision.

The calibre of the vesical portion of the speculum is determined by the urethra, through which it must pass in order to enter the bladder. The calibre of the urethral portion depends upon the size of the external urethral orifice in the individual, as well as upon the degree of safe or expedient dilatibility of the orifice, which varies from about 6 millimetres as a minimum all the way to 20 millimetres as a maximum.¹ The commonest size employed is from 9 to 12 millimetres in diameter.

The size of the vulvar portion may vary from a tube equal in diameter to the urethral portion to a funnel with its sides at an angle of 45 degrees or more to the long axis of the speculum. The question then arises whether there are any impor-

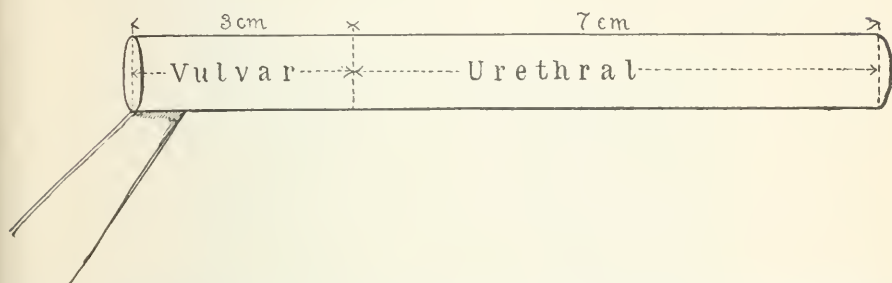


Fig. 1 shows the simplest possible form of a vesical speculum, a cylindrical tube with a handle attached at one end. The tube, not less than ten centimetres long, is divided into two parts, a urethral and a vulvar portion. The urethral portion is divided into two parts, one of which occupies the urethra while the other projects into the air-distended bladder. The vulvar portion is necessary in order to project the tube beyond the vulvar tissues which tend to fall over the orifice, as well as to afford an attachment to the handle.

tant advantages to be gained by expanding the outer end of the speculum at all.

A glance at a diagram of a speculum constructed with a large conical opening at once reveals certain material advantages to be gained over an ordinary straight speculum of equal calibre from end to end.

In the first place, by means of the vulvar cone the field of vision is increased from a circle of about 20 millimetres in diameter to one of 30 millimetres, in viewing the posterior hemisphere through a No. 10 speculum at a distance of 5.7 centimetres from the end of the speculum (see Fig. 2).

¹Gustav Simon established the safe limit of dilatibility at a little over 29 millimetres, provided the proper precautions were used. I believe, however, that few urethrae will stand this degree of distension without permanent incontinence.

In the second place, just as the visual field is enlarged, in like degree is the scope for instrumentation in the bladder increased; in other words, a pair of scissors or forceps, for example, in

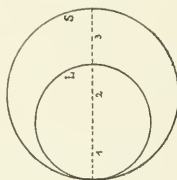
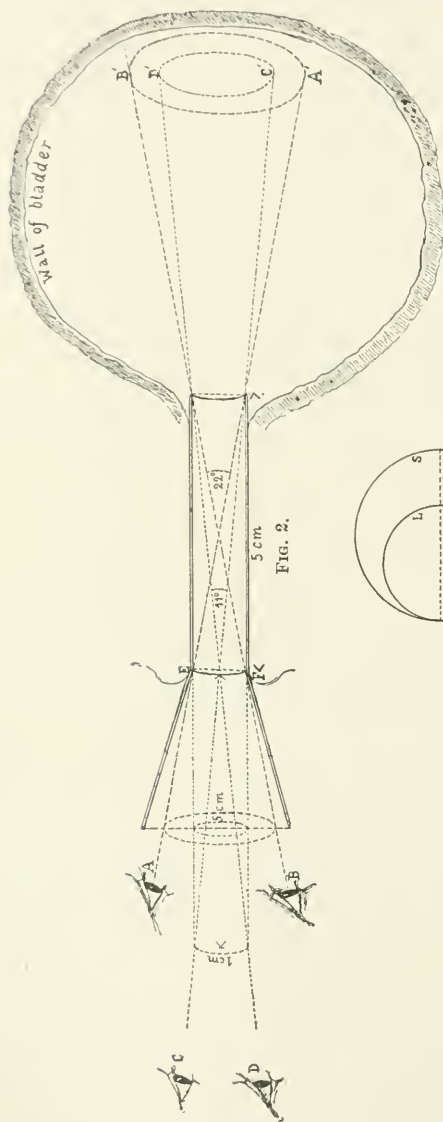


Fig. 2 shows the simple cylindrical speculum compared with a short speculum with a large funnel-shaped vulvar end. The bladder is seen in horizontal section, and the distance of the posterior wall from the internal urethral orifice is 5.7 centimetres, the average distance shown by Hunner and Lyons' measurements of air-distended bladders made in my clinic. While the eye at C and D is only able to view a circle of the size of D' and C' in the posterior bladder wall, through the larger speculum the eye at A and B is able to view the circle A' B'. The angle subtended by the smaller circle is 11°, as contrasted with 22° in the case of the larger circle. Fig. 3.—This figure shows, projected on a flat surface, how much greater is the area seen through the shorter speculum with the large funnel-shaped orifice. The ratio in the diameters of the circles is as 2 to 3.

which the handles have to be separated for use, can scarcely be opened through a No. 10 speculum made with a long tube, but in the shortened speculum with the enlarged vulvar end

the degree of separation of the blades is ample, making a difference between the practicable and the impracticable. These points will be clearly appreciated upon consulting the diagram (Figs. 2 and 3), which shows a No. 10 speculum (10 millimetres diameter), 10 centimetres in length, pointing toward the posterior bladder wall, 5.7 centimetres distant from the end of the speculum, on which are marked out the fields visible through a short and a long speculum, respectively, of equal calibre; the innermost lines intersecting the bladder wall represent the field of the long speculum, while the outer lines represent the diameter of the circle seen through the short tube. At the opposite end of the diagram are figured the extreme positions the

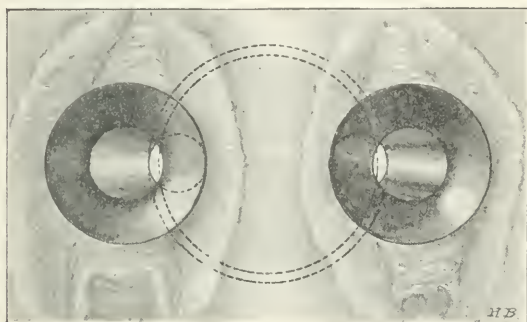


FIG 4 shows the specula tilted to right and to left to demonstrate an important principle in the monocular examination of any surface through an open tube; that is to say, a person looking through the speculum at A and B (Fig. 2) distinguishes the illumination of the whole of the circle A' and B', but cannot distinguish details around the outer margin of this circle. There is an area, about two millimetres in diameter, which may be called the area of penumbra where details cannot be observed. This is due to the fact that the slit through which the eye looks must be at least two millimetres in diameter. The eye cannot simply follow a single pencil of light and study the spot it illuminates, without having in view at the same time some part of the neighboring tissues by way of contrast.

eye at E and F takes on looking through the long speculum, and at C and D on looking through the short one; the difference between the fields of vision is shown in the small circle included in the larger one and in Fig. 3.

The diagram not only demonstrates the advantage of enlarging the extra-urethral portion of the speculum, but shows as well the size and form of the vulvar portion, which must be conical, not less than the lines subtending the largest circle lest important advantage should be lost, nor much greater as no further advantage can be gained in the way of inspection or instrumentation.

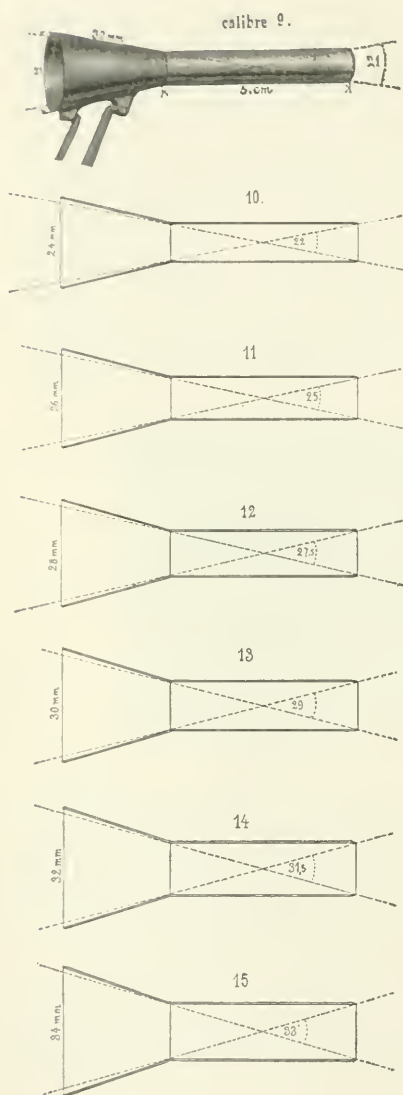


FIG. 5 shows a series of specula (half natural size) constructed with tubes varying from 9 up to 15 millimetres in diameter, with the conical vulvar ends increasing in like ratio in accordance with the angle made by two lines intersecting in the centre of the tube. These angles are respectively 21° , 22° , 25° , 27.5° , 29° , 31.5° , 33° . The cone is made two millimetres wider than the prolongation of the intersecting lines; that is to say, the orifices are respectively 21, 24, 26, 28, 30, 32, 34 millimetres in width.

All future vesical specula for open aeroscopic inspection should therefore be made on these lines.

Several interesting practical questions now arise. Shall we have entirely separate specula nesting one within the other with a detachable handle, or shall we have one or two large funnels with the lower urethral ends to screw into the funnel for convenience in carrying about and packing away?

Further, would the funnel best be blackened, or does a polished surface aid in illuminating the bladder by reflecting the light within it?

I shall leave some of these questions to be determined after more experience and experiments, and content myself for the present with adopting these specula, of which I here give the measurements.

The length of the urethral end varies from 5 to 7 centimetres, while the length of the funnel is 5 centimetres; the measurements apply to the diameter of the tubular part of the speculum, the width at the outer orifice of the funnel, and the angle between the sides of the funnel.

I have had a detachable spring handle made for some of my specula, in accordance with the suggestion of Mr. H. Becker; the spring works from side to side, instead of up and down as shown in Fig. 5, speculum No. 9.

THE TREATMENT OF PERSISTENT FECAL FISTULÆ.¹

BY

I. S. STONE, M.D.,
Washington, D. C.

ONE of the most distressing and annoying of post-operative sequelæ is fecal fistula. As all surgeons know, the greater number of these close spontaneously, yet we occasionally find it necessary to resort to some form of surgical relief. Persistent fistulæ always have some definite cause which serves to prevent closure, such as extensive peritoneal adhesions between bowel surfaces. Small fistulæ in healthy bowel heal readily, while those in unhealthy bowel, as in tubercular disease, may persist indefinitely. Perhaps the larger number of cases follow in the wake of appendical abscess, although we not infrequently see even these close spontaneously. The causes of permanent fistulæ must be removed before closure will take place, as may be seen in certain cases where peristalsis is either reversed or interfered with by adhesions. Thus we occasionally see reports of cases requiring extensive surgery, including anastomosis, before a cure can be made. It may safely be said that there is no routine treatment of fecal fistulæ. No one plan will suit all cases, and we now wish to mention certain methods which we believe to be followed by the best results.

The first is the method of Greig Smith, to cut down upon each side of the fistula (yet not through it) to the peritoneum without opening it; dissect about two inches of this away from the abdominal wall on each side or around the fistula as a centre, then withdraw the peritoneum, with attached and adherent bowel, far enough to easily close the fistula. It is due this great surgeon to give his reasons for suggesting this procedure, which he claims is always successful. He takes the position that peritoneal surfaces do not unite as firmly as denuded surfaces, and claims that these openings in the gut are closed safely and speedily by rough cicatricial coaptation.¹ Surely such a plan may be

¹ Read before the American Gynecological Society, at Washington, D. C., May, 1900.

² See Greig Smith's work on "Abdominal Surgery," ed. 5, vol. ii., p. 728

tried, as it is far easier and safer than any other method worthy of consideration, but obviously it can only be used in superficial fistula. We need scarcely refer to the methods of closure practised by all surgeons in appropriate cases, such as cutting down upon the gut, excising the fistula and closing with Lembert sutures, or the excision of a loop of diseased bowel and end-to-end anastomosis. These methods, as well as lateral anastomosis, may often be used with advantage, but are so well known and universally used as to require no mention here.

A permanent fistula following an operation upon an appendical abscess may require anastomosis by exclusion. This operation, which has apparently been the result of Dr. Senn's experimental work upon animals, will occasionally be required before we can close certain fistulæ, especially those with a tortuous sinus, not connecting with intestine immediately under the external wound. When the cecum and ascending colon are greatly thickened and bound firmly by adhesions, a condition is present which constitutes a partial obstruction to the passage of intestinal contents and renders almost any operation upon the bowel entirely useless. In such cases the surgeon may take a section of ileum as near the caput coli as convenient, and transplant, or make end-to-side anastomosis to the transverse colon.¹

Kammerer, in a valuable paper on intestinal anastomosis, establishes the fact claimed by Senn, that fecal accumulation in the excluded portion of gut really causes little if any inconvenience or danger. The excluded portion rapidly atrophies. As all well know, the Murphy button may be very convenient in such end-to-side anastomoses. Kammerer claims his as the first successful case recorded.² His method is briefly as follows: Supposing we have a permanent fistula in the region of the appendix, a result of gangrenous appendicitis, leaving a large opening which is really an artificial anus. Kammerer opens the abdomen, divides the ileum some inches away from the head of the cecum, closes the distal portion, and unites the proximal end; as above stated, to the transverse colon. It is

¹ Maisonneuve was among the first to suggest lateral anastomosis for cure of fistula, and made numerous experiments upon animals. Billroth in 1881 performed such an operation, but lost his patient. Von Hecker was next to try this expedient (*Wien. med. Woch.*, 1888, No. 17; 1892, No. 1). Elliott, Porter, and Kammerer were, in this country (*Boston Medical and Surgical Journal*, vol. cxxxix., 513), foremost among those who essayed to overcome these troublesome lesions by some form of surgical handicraft.

² *Medical Record*, February 20, 1897.

evident that fecal discharge through the fistula must cease at once, and, if the patient recovers from the major operation, a curetting will aid in the closure of the sinus. Some authors, having tried lateral anastomosis for similar reasons, occasionally find the fistula refuses to heal, because all fecal circulation through that portion of gut in which the fistula is situated is not prevented.

The pelvic surgeon frequently has to fear fistula resulting from injured bowel which he encounters during the enucleation of pus sacs, etc. The sigmoid and upper rectum usually suffer here, and their fistulæ are most difficult of closure owing to their situation, which is deep in the pelvis and covered with coils of superimposed bowel. Besides the situation, which renders access difficult, the function of the rectum serves to perpetuate these fistulæ, because it is a receptacle or reservoir for gases and fecal matter.

The writer's successful experience with two cases of recto-abdominal fecal fistula of long standing appears to justify brief mention of the method used.

Mrs. W. was operated upon in Columbia Hospital November 21, 1896, by celiotomy, for enucleation of large tubo-ovarian abscesses. Fecal fistula resulted, which resisted vaginal hysterectomy one month later. When hysterectomy was done we hoped, by a liberation of adherent bowel in this as in other cases, to secure closure.

During the four years succeeding operation the patient became enormously fat, with a very thick abdominal wall, and furthermore refused abdominal section. Therefore we made use of the following method: In January, 1900, the patient was placed in the lithotomy position and the vagina incised over the cicatrix, much as in beginning vaginal hysterectomy. Coming upon dense adhesions, these were forcibly separated by finger and forceps until the fistula was reached where it joined the rectum and was recognized by a sound introduced through the fistula by way of the abdominal opening. A sound in the rectum also aided in finding the point where the fistula communicated with the gut. After opening the fistula track a long forceps was introduced, which carried a rubber tube through the vaginal opening into the rectum, through the fistula, and this was secured in position by sutures to the wound. The tube allowed the escape of all the gases from the rectum and also some thin fecal matter during the two weeks it was kept in position. It was thought possible that the sinus would heal if we could in any manner divert the

fecal current. In this we were not disappointed, for we failed to force colored water through the fistula after the tube was removed from the recto-vaginal opening.

The tube was allowed to remain in the rectum for two weeks, after which time the abdominal sinus was washed out daily with a weak solution of formalin, and the track closed permanently about one month afterward. The recto-vaginal opening also closed promptly. The result was peculiarly gratifying because the patient, a most excellent lady, dreaded any operation through the abdomen, and quite naturally so, on account of the great danger to which she was exposed at the time of her first section. I had concluded to suggest in this case, as an ultimate resort, the creation of an artificial anus by colotomy, hoping to divert the discharges away from the sigmoid and rectum temporarily, in order to insure a clean bowel, and to facilitate excision of the fistula and insertion of a Murphy button at some future date. In appropriate cases we suggest celiotomy, separation of adhesions, excision of the diseased structures, including the fistula, and end-to-end anastomosis by the Murphy button. It must be remembered, however, that even in cases operated upon by ourselves we seldom know what difficulties may be encountered. How much more difficult, then, must it be to undertake the cure of a patient the nature and extent of whose infirmities we can only guess from the presence of an external fistulous communication with her intestines! In one unfortunate woman who had a fecal fistula of five years' standing, I found, besides the recto-abdominal opening, two loops of ileum discharging into this fistula, also two artificial anastomoses between coils of small intestines and descending colon, one near the splenic flexure, another at the junction of colon and sigmoid. The patient was too weak to undergo such radical surgery and died of shock.

In conclusion I would suggest:

1. That in all persistent fistulæ we must, for obvious reasons, first remove any foreign body, such as silk or other ligatures.
2. That attempts at skin closure or by cauterization or curettement of persistent fecal fistulæ are generally unsuccessful.
3. In all cases where a fistula connects with a superficial coil of intestine, the method of Greig Smith should be tried before resorting to more radical operations.
4. In deep-seated fistulæ requiring abdominal section we must choose between excision and some form of anastomosis, for we will rarely find the case so simple as to permit inversion of the fistulous portion and direct suture.

5. In operating for deep-seated fistulæ we must not fail to liberate imprisoned bowel, so as to restore the normal peristalsis, permit free motion of intestinal coils, and direct the fecal current in its proper course.

6. In recto-abdominal fistula we should, if possible, convert the lower portion into a recto-vaginal fistula and secure healing of the old track before the temporary vaginal opening is allowed to close.

1449 RHODE ISLAND AVENUE, N. W.

CORRESPONDENCE

PRESIDENT-ELECT OF THE INTERNATIONAL CONGRESS OF GYNECOLOGY AND OBSTETRICS.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—I beg to forward to you a copy of a letter to Professor Simpson, of Edinburgh, drafted at a meeting of the past and present teachers of gynecology and obstetrics in the metropolitan medical schools now practising in London, which was held at my house on Tuesday last. You will observe that it is signed by every one who comes under that description, without, I believe, a single exception.

I need only add that our objection to the election of a president is in no way personal to the distinguished obstetrician to whom the enclosed letter is addressed. To many of us, certainly to myself individually, since he is one of my oldest and most valued friends, he would have been a *persona gratissima* for the post. Our objection is not to the man, but to the manner in which he was elected.

I am, sir,

Yours obediently,

W. S. PLAYFAIR.

38 GROSVENOR STREET, W.,
May 7, 1900.

38 Grosvenor street, London, W..
May 1, 1900.

To Prof. R. A. Simpson, M.D., President-elect of the International Congress of Gynecology and Obstetrics.

DEAR SIR:—We learn, from a circular dated “37 Queen Anne street, April, 1900,” that it has been decided to “hold the Fourth International Congress of Gynecology and Obstetrics in London in 1902” under your presidency.

As past and present lecturers and teachers of obstetrics and

gynecology in the London medical schools, we wish to explain to you, and especially to such of our foreign colleagues as might contemplate attending such Congress, that those who have issued this invitation have assumed a representative position to which they are, in our opinion, not entitled and which we find ourselves unable to recognize.

We cannot, therefore, take any share in promoting or joining in such Congress, but trust that you will accept our assurance that our decision has been arrived at with regret and with no intention of discourtesy to yourself or other visitors, either British or foreign.

We are, dear sir,
Very faithfully yours,

(Signed)

J. WATT BLACK,	W. R. DAKIN,
AMAND ROUTH,	A. F. STABB,
T. W. EDEN,	<i>St. George's Hospital,</i>
<i>Charing Cross Hospital,</i>	M. HANDFIELD-JONES,
A. L. GALABIN,	W. J. GOW,
P. HORROCKS,	<i>St. Mary's Hospital,</i>
J. H. TARGETT,	C. J. CULLINGWORTH,
<i>Guy's Hospital,</i>	W. W. H. TATE,
W. S. PLAYFAIR,	<i>St. Thomas' Hospital,</i>
T. C. HAYES,	J. WILLIAMS,
J. PHILLIPS,	H. R. SPENCER,
<i>King's College Hospital,</i>	G. F. BLACKER,
G. E. HERMAN,	<i>University College Hospital,</i>
A. H. N. LEWERS,	J. B. POTTER,
<i>London Hospital,</i>	W. R. POLLOCK,
W. DUNCAN,	<i>Westminster Hospital,</i>
R. BOXALL,	MARY SCHARLIEB,
<i>Middlesex Hospital,</i>	<i>London School of Medi-</i>
F. H. CHAMPNEYS,	<i>cine for Women.</i>
W. S. A. GRIFFITH,	
<i>St. Bartholomew's Hospital,</i>	

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY.

TWENTY-FIFTH ANNUAL MEETING, HELD AT WASHINGTON, D. C.,
MAY 1, 2, 3, 1900.

*The President, GEORGE J. ENGELMANN, M.D., of Boston, in
the Chair.*

The address of welcome was given by DR. JOSEPH TABER JOHNSON, of Washington, D. C.

DR. WILLIAM R. PRYOR, of New York, read a paper entitled

CARCINOMA OF THE RECTO-VAGINAL SEPTUM.¹

DR. PAUL F. MUNDÉ.—I consider it fortunate that these cases are rare. I have seen but two cases of primary cancer of the vagina; in these I have curetted and cauterized. I do not consider that radical work repays for the slight benefit received.

DR. R. S. SUTTON, of Pittsburg.—I have seen but one case in thirty-four years, and I do not favor radical operation. I think the pathology of cancer should engage our attention, instead of a new method for removal.

DR. E. VAN DE WARKER, of Syracuse.—I feel that nothing has been gained by operations such as this for cancer.

DR. E. E. MONTGOMERY, of Philadelphia.—I believe that the great frequency of recurrence of malignant disease, where it involves the vagina, the parametrial tissue, and the broad ligament, makes questionable the operative treatment. I have seen patients in whom I felt that an operative procedure would result favorably, but in whom there was an early return of the disease. In other cases of extensive destruction of the cervix the patient lived several years without recurrence.

DR. A. LAPHORN SMITH, of Montreal.—I have had but little experience with cancer of the vagina, but considerable with cancer of the rectum. By removing the lower half of the rectum, and all the glands that could be felt from below, I have thought I had removed all of the disease, but the longest period that the patient lived was one year. Though in many cases little is gained, I think the uselessness of the operation ought to be considered, in view of the number of women, who could be possibly cured, refusing operation on account of adverse reports.

DR. JOHN BYRNE, of Brooklyn.—I have had no experience with isolated cancer of the vagina. I have for years regarded the operation as useless.

DR. T. A. REAMY, of Cincinnati.—I have known a half-dozen women who lived from six to ten years after having the cervix removed. The condition was proved to be cancer from the examination by the ablest pathologists and microscopists whom I could secure.

DR. GEORGE J. ENGELMANN, of Boston.—I grant that in a large percentage the disease cannot be stayed. I do, however, know of cases in which, if the operation is done in time, the result is satisfactory.

DR. PRYOR (in closing).—Possibly the next copy of the *Centralblatt für Gynäkologie* will tell us how to detect the cancer bacillus and point us to some antiseptic to apply to it; but, up to that time, we must be surgical.

Cancer of the vagina and rectum must be viewed, not as cancer of the vagina or of the rectum, but in the light of its

¹See original article, p. 731.

complications. If you can operate for the cancer and do a colostomy low down in the body, it provides a cloaca for retained feces, and so seems to me to be the operation of choice.

As to the advisability of an operation apparently so severe as this, I take issue with Dr. Laphorn Smith, and will not sacrifice the life of a woman with so grave a disease, if my conscience indicates that she should be operated on, for fear some remote patient in the mountains might decline operation should the result be fatal. The operation is for cancer of the rectum and of the vagina, and is applicable to the graver forms of cancer in which the uterus may be involved.

DR. I. S. STONE, of Washington, D.₂C., read an essay on

FECAL FISTULÆ.¹

DR. CURRIER.—I have seen but one case of fistula of the small intestine. That remained obstinately open, and the patient continued to lose ground. The case was cured by resection of the small intestine.

DR. A. W. JOHNSTONE.—As a matter of justice to two dead men, I would state that the method outlined by Dr. Stone was taught by Lawson Tait to Greig Smith. I assisted Mr. Tait the first time he closed a fistula in that way, which was his seventeenth operation. Ever since 1886 I have used that method in closing fistulæ of every description, and succeeded on the third operation of closing ureteral fistula. I always use it on a vesico-vaginal fistula, splitting the viscus and turning part of it in and part out. In ureteral fistulæ none but the very finest instruments can be used.

DR. C. P. NOBLE.—I have seen a goodly number of fecal fistulæ, and all have closed spontaneously except four. Three remain obstinately open; one recovered after operation.

When the fistula is in the larger bowel and the case is not tubercular, it is my experience that the prognosis is most excellent. In tubercular cases the prognosis is very bad whether or not operation is done. In one such case operated on the result was a failure, and in quite a number the patients have died or the results have been unsatisfactory.

DR. DUDLEY.—In operating for cancer and in breaking up the adhesions I broke the small intestine in two. I put in a Murphy button. I could not remove the uterus, and found that the structures were so thoroughly involved, including the rectum, that I put the patient to bed, expecting she would die. The Murphy button was recovered, having worked down to the rectum and out through the fistula behind the uterus. The fistula healed and the woman recovered.

DR. MUNDÉ.—I have been told that prevention of fistula could be attained by clean surgery. I think my friend Dr. Noble stated that fistula was always the result of unclean surgery. I think he is right, but still sometimes fecal fistulæ

¹ See original article, p. 823.

do occur where the surgery has been perfectly clean. I have within a year had three cases of fistula resulting from intentional opening of the intestines to relieve obstruction to the bowels tending to general peritonitis, following some abdominal operation. In the first case a Murphy-button operation was performed, as the fistula refused to close spontaneously. The patient did not survive the second operation. The second case recovered. The woman had fecal fistula through the vagina after hysterectomy for double intraligamentous abscesses. This fecal fistula in the vagina closed spontaneously, but the abdominal fistula was so large that, after two attempts to close it by freshening the intestinal edges through the wound, it was resected and the Murphy button applied.

In one case of fistula above the sigmoid, in which the gut was adherent, the layer operation gave a cure. In another Szymanowski's operation was performed, which consists in paring the one side of the skin and sliding it under the other lifted-up side. This gave complete closure of the open gut.

DR. MANN.—Fistula of the large intestine is apt to heal of itself, and I would be very conservative in my management, giving it a long time to heal. With the small intestine the condition is somewhat different; the opening will not heal as well as the larger. The further up the lesion is in the small intestine the less likelihood is there of healing. The nearer to the stomach the harder is it for healing to occur; the gastric juices seem to interfere with the reparatory process. I believe, therefore, that we are almost always obliged to open the abdomen in these fistulæ of the small intestine.

Further treatment must depend upon the size of the opening; if close to the mesentery it will be dangerous to sew it. If the opening be large we cannot sew it for fear of stricture; in these cases we are obliged to resect. I have seen a number of these cases and have had satisfactory results. In one or two the result has been satisfactory by a plastic operation on the abdomen without opening the abdomen and cutting down upon the intestines.

DR. REUBEN PETERSON.—In a case of double pyosalpinx I operated through the abdomen, and, in freeing the pus sac, opened into the rectum. I packed with gauze, and following that there was a fecal fistula which did not close, and the condition went on for a year. At that time I removed the uterus and hoped to close it from below. This also failed. Under these conditions it seems to me that it is very dangerous to advise patients to undergo abdominal operations when the fistula is low down.

One peculiarity of the case which retains the rectal fistula is that the patient refuses to have anything done, although twice in twenty-four hours it is necessary to pack gauze into the abdominal opening.

DR. I. S. STONE.—I think almost to a unit the Society is agreed on the danger of opening the abdomen in conditions of this sort, and that this should only be done after every superficial method has been employed.

The deeper fistulæ along the sigmoid and the rectum are those which give us the most trouble.

In regard to the claim of priority made for Lawson Tait and Greig Smith in the method I have pursued, I had no idea that Mr. Tait claimed this procedure. I do not see how the method is a typical flange suture, and I think I may therefore be excused from the criticism of Dr. Johnstone.

I think Dr. Mundé's method is applicable to a large number of fistulæ where the sinus is uncontaminated with fecal matter. In the presence of fecal discharge my own method has the advantage of dividing off the fecal fascia and leaving an opening entirely clean. I think this is certainly very clear, and I am sure it has been successful in two cases.

(To be continued.)

REVIEWS.

DISEASES OF WOMEN. A Treatise on the Principles and Practice of Gynecology for Students and Practitioners. By E. C. DUDLEY, A.M., M.D.. Professor of Gynecology, Northwestern University Medical School; Gynecologist to St. Luke's Hospital, Chicago, etc. Second edition, revised and enlarged. Four hundred and fifty-three illustrations, 47 in colors, and 8 plates in colors and monochrome. Pp. 716. Philadelphia and New York: Lea Brothers & Co.

Dr. Dudley is to be congratulated in that the practical, straightforward clearness which marked the first edition of his work has so appealed to the profession as to make a second edition necessary within the short time of a year and a half. The present volume, while retaining the same general grouping of subjects according to their pathological and etiological sequence—an arrangement which has been most generally approved—and most of the subject matter of the first edition, has been most carefully revised. The functional disorders of menstruation have for convenience been brought together in new chapters. The sections on diagnosis and on bladder affections contain much new material. Clearness and force have been added to the text by numerous changes in words and phrasing. Six full-page plates, thirty-one illustrations, and seventy-eight pages of reading matter have been added. As the first edition was good, so this second edition is better.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In 20 volumes. Vol. XIX., pp. 828. New York: William Wood & Co., 1900.

Five hundred and twenty-two pages of this volume are

devoted to an absorbingly interesting and important work by Marchiafava and Bignami, of Rome, on the subject of malaria. In the course of little more than six months our knowledge of the biology of the malarial parasites outside the human body has so wonderfully increased that it is now as well known, in certain parts at least, as is the natural history of the same parasites in the blood. A question of such great practical importance for the physician as the mode of entrance of the parasites into man has been determined experimentally, and where only a few months ago doubt was reasonable, now there is certainty. This increase of our knowledge of the life history of the parasites has naturally modified our views regarding the epidemiology of malaria, has pointed out a new and certain method of prophylaxis, and has swept away forever much traditional rubbish that only served to obscure our clear conception of the disease. Medicine is to be congratulated in that she has in this demonstration fairly rivalled some of the great triumphs of surgery.

The balance of the volume, 286 pages, is taken up by an article by Simon Flexner, of the University of Philadelphia, on micro-organisms, and one by Eugene L. Opie, of the Johns Hopkins, on the parasitic protozoa.

THE MEDICAL DISEASES OF CHILDHOOD. By NATHAN OPPENHEIM, A.B., M.D., author of "The Development of the Child," Attending Physician to the Children's Department of Mt. Sinai Hospital Dispensary. With 101 original illustrations in half-tone and 19 charts. New York: The Macmillan Co.; London: Macmillan & Co., Ltd., 1900.

This book—which, by the way, is a beautiful example of the printer's art—contains 653 pages. In point of size it must therefore be classified as holding a middle position between the student's compends and the exhaustive text books. Holt's book, for instance, contains over eleven hundred pages and is more closely printed.

Dr. Oppenheim has a good style. His sentences are clear and terse, and he is manifestly an enthusiast on embryology and pathology. There are many good things in the book, and the medical man who is already the possessor of a more detailed work will find it a valuable and pleasing addition to his library. He will, however, find that it does not contain those details of symptomatology and of technical procedures which brought to the larger work above referred to such immediate and widespread popularity. Active practitioners refer to text books to refresh their memories often on most trivial subjects—how hot should a bath be to fulfil certain indications, how high should a douche bag be held under certain circumstances, etc., etc., *ad infinitum*. The most generally useful text book is the one which takes the least for granted and presumes complete mental vacuity on the part of its readers. The illustrations in Dr. Oppenheim's book demand a word of mention. They are without exception photomicrographs of pathological

or physiological sections, and in his preface the author states his belief that these will prove of greater value than the customary plates of patients, instruments, etc. We cannot agree to this. Photomicrographs of stained sections are almost invariably extremely disappointing practically, and those of Dr. Oppenheim are no exception to this rule. On the other hand, clinical photographs are often of great value, and it certainly is not unusual for a correct diagnosis to be arrived at largely through the resemblance of the case in hand to some text book plate, fortified by the descriptions and explanations in the text.

W. L. B.

THE CARE OF THE CHILD IN HEALTH. By NATHAN OPPENHEIM, A.M., M.D., Attending Physician to the Children's Department of Mount Sinai Hospital Dispensary. Pp. 300. New York: The Macmillan Co., 1900.

This is a dainty little book which appeals to you through its simple red binding, its fine paper, uncut edges, and clear type. You read the first page, the first chapter, and on to the end with an increasing feeling of pleasure in its charming literary style, an increasing feeling of respect for the high ideal of its author and the thoughtful manner of his expression. The value of the work lies not so much in the routine chapters on feeding, bathing, sleep, and exercise—though these are all excellent—as it does in the manner in which it develops the high obligations and rewards of maternity, the relation of parents to children, and the importance of right principles in the formation of early habits and in the early education of the child. No one can read its lines without a feeling of benefits received. You are impressed that the book is because its writer had what is of value to say, and that he has said it well.

VENEREAL DISEASES, THEIR COMPLICATIONS AND SEQUELÆ. By EDWARD L. KEYES, A.M., M.D., late Professor of Dermatology and Genito-urinary Surgery in the Bellevue Hospital Medical College, Consulting Surgeon to Bellevue Hospital, etc.; and CHARLES H. CHETWOOD, M.D., Professor of Genito-urinary Surgery in the New York Polyclinic College and Hospital, etc. Pp. 350. Illustrated by 8 full-page plates in black and colors and 107 engravings. New York: William Wood & Co., 1900.

Twenty years ago, principally to disseminate his teachings on the treatment of syphilis and to combat the furor then raging for anterior urethrotomy, Dr. Keyes, the senior author of this volume, issued a work of identical title. The tonic treatment of lues by the prolonged mild use of mercury, in such a way as to do the patient no harm while his malady is being mastered, is to-day so widely spread, understood, and accepted that no radical change is required in the presentation of the subject, and we find none in the present volume. In the section dealing with diseases of the urethra, however, time and experience, bacteriology and therapeutics, have revolutionized

the ideas of only a few years ago, until now an entirely new presentation of the subject has become necessary, and Dr. Chetwood, the junior author, has entirely remodelled and rewritten this portion of the book, so that it becomes of the first importance and expresses clearly and practically the most approved and modern teaching. Especial care is taken in the description of the treatment by irrigation, and the chapter on chancroids has been recast. A valuable chapter on syphilis of the nervous system is contributed by Dr. Pierce Bailey, consulting neurologist to St. Luke's Hospital, New York.

THE IRRIGATION TREATMENT OF GONORRHEA, ITS LOCAL COMPLICATIONS AND SEQUELÆ. By FERD. C. VALENTINE, M.D., Professor of Genito-urinary Diseases, New York School of Clinical Medicine; Genito-urinary Surgeon to the West Side German Dispensary, etc. Pp. 212, 57 illustrations. New York: William Wood & Co., 1900.

The modern treatment of gonorrhea by irrigation has given results so positive and certain that the older therapeusis has been outclassed and distanced in the race. Dr. Valentine's work, in a minute and careful exposition of the subject, places before the physician who may not be already familiar with its details the rationale and technique of irrigation in acute gonorrhea, the advantages of dilatations and irrigations in chronic gonorrhea, the dangers of uncured gonorrhea and the means of locating the foci of the disease after its external manifestations have subsided, and finally urges physicians to use their influence for the dissemination of a better understanding of the disease.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX. A Work of Reference for Medical Practitioners. Pp. 748. Illustrated. Published by E. B. Treat & Co., New York and Chicago, 1900.

THE AMERICAN YEAR BOOK OF MEDICINE AND SURGERY. Edited by GEORGE M. GOULD, M.D. Two vols., pp. 1120. Illustrated. Philadelphia: W. B. Saunders, 1900.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., and CHARLES ADAMS HOLDER, M.D. Vol. I., March, 1900. Pp. 438. Philadelphia and New York: Lea Brothers & Co., 1900.

While these three works are essentially similar in their general plan, they differ much in scope and detail. The *Annual*, now in its eighteenth year, is the smallest, cheapest, and most condensed. It is the work of some forty contributors selected from the profession of America and England, and covers every department of medicine and surgery. The *Year-Book*, in two volumes, Medicine and Surgery, is a more ambitious work, is larger, printed in clearer type on better paper, is well edited and carefully written. Its contributors are all from the

United States and mostly from Philadelphia. *Progressive Medicine*, in four volumes, has the space to treat its subjects still more in detail, and its various chapters are more academic in style. Its writers are from both England and America. It is well printed from clear type on good paper.

ATTI DELLA SOCIETÀ ITALIANA DI OSTETRICIA E GINECOLOGIA. Reported by CESARE MICHELI. Vol. V., pp. 681. Rome: Tipografia dell' Unione Co-operativa Editrice, 1898.

Seventy-three articles on obstetrical and gynecological subjects, together with the discussions thereof, are given in this volume and constitute a most valuable résumé of the work done in this field in 1898. Where all is of such interest it would be invidious to single out special articles for analysis. The subjects range from the treatment of uterine prolapse and lacerations of the cervix, through various diseases of the uterus and appendages, complications of pregnancy and labor, up to Cesarean section and other major operations. The illustrations are many and good. The book is well printed and a credit to both author and publisher.

AN INTRODUCTION TO DERMATOLOGY. By NORMAN WALKER, M.D., Assistant Physician for Diseases of the Skin to the Royal Edinburgh Infirmary. Pp. 246, with 30 plates and 34 illustrations in the text. New York: William Wood & Co., 1899.

There is more in this small volume than its modest title would seem to imply. It contains short, practical, and very clear descriptions of all the lesions of the skin which the ordinary practitioner is liable to meet, and is illustrated by a number of very instructive and typical plates.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Indications for Operation for Uterine Fibroids complicating Pregnancy.—H. Delagénière¹ believes that induced abortion for this condition should be absolutely discarded, on account of the high mortality which has resulted. If pregnancy has been normal in its course; if the fibroids are small, or if larger are situated in the fundus, no intervention should be attempted. If pains are caused by compression of pelvic organs by the tumor, especially when the tumor is incarcerated in the pelvic cavity, intervention is necessary. Absolute indications for operation include compression of the ureters and bladder and of the rectum, hemorrhage from placenta previa, and placental hemorrhages leading to death of the fetus. All fibroids of the cervix protruding into the vagina may be removed without danger to mother or fetus, and this should be

done in all cases. Myomectomy is indicated for fibroids of abdominal evolution when single and pedunculated or included in the broad ligament. The uterus must also be removed when filled with fibroids whose growth has already interfered with pregnancy; when the fetus is dead or in danger of death, especially when the tumor is in the lower segment of the uterus and would oppose the expulsion of the dead fetus; when the child is viable; in cases of malignant tumors. For removal of the uterus Delagénière prefers total hysterectomy or supravaginal hysterectomy, giving the choice to the latter when the vault of the vagina can be left without causing trouble. He cites a number of illustrative cases.

Porro Operation for Cancer of Gravid Uterus.—Draghiesco and Christian² relate the clinical history of a case of carcinoma of the cervix in a woman who was seen when in the ninth month of pregnancy. Labor began normally and the membranes ruptured, but rigidity of the cervix caused by the neoplasm prevented its dilatation. By a Porro operation the child was saved and the life of the mother prolonged. One month after the operation the discharge had ceased and the patient was able to walk; two months after, phlegmasia alba dolens of the left and then of the right lower extremity supervened, and later pulmonary embolism, the symptoms of which disappeared within a few days. The writers believe that in such cases as this the life of the child is of the greater importance, and so prefer the treatment they adopted to induction of premature labor, total hysterectomy before the child is viable, or ligation of the blood vessels supplying the uterus.

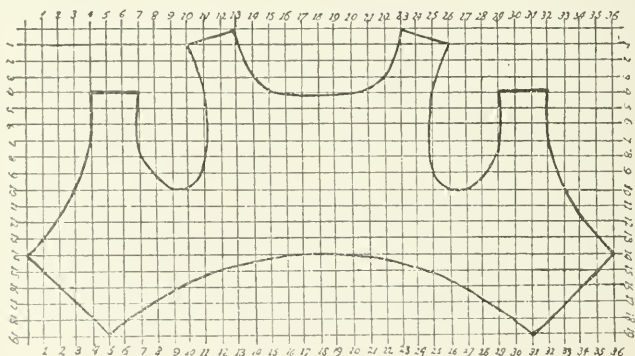
Ectopic Gestation.—An interesting case of this affection is described by Severeano.³ The patient, 32 years old, had an occlusion of the nasopharynx by adhesion of the soft palate to the posterior pharyngeal wall, due to persistent ulceration of this region at the age of 12. Menstruation at 14, painless, irregular, profuse; married at 20; one child at term, which died later of convulsions. Ten years ago, after exertion, had a sharp pain in the right iliac fossa and temporary amenorrhea. Eighteen months ago menstruation ceased and the abdomen gradually enlarged, but without pain until two months before operation. A semi-solid, slightly fluctuating tumor to the right of the median line, extending from the iliac fossa to the umbilicus, and fluctuation in the right cul-de-sac, were found upon examination. Operation revealed a tumor the size of an adult head, adherent to neighboring organs, containing a sero-purulent fluid and a dead and macerated fetus, cord and placenta. The cyst was enucleated and the abdomen irrigated and drained. Death.

E. R. Smith⁴ reports a case in which two tubal pregnancies occurred in a patient in one year. Both tubal pregnancies ruptured and required abdominal section and the removal of a tube. The second pregnancy occurred ten months after the first operation.

Prolapse of the Gravid Uterus.—L. Hirigoyen⁵ has re-

cently observed a case of incomplete prolapse of the uterus at the sixth month of pregnancy, the cervix protruding about one and a half inches from the vulva. The uterus was replaced and held in position by tampons. The patient was kept in the recumbent position, and at the time of reporting the case, one month after the accident, the pregnancy was continuing normally.

A Breast Binder for Postpartum Use.—J. B. Cooke⁶ advises the use of a bandage made similar to the illustration given below. After the shoulder straps are adjusted and pinned, the ends are to be drawn well together and pinned in the median line over the sternum. According to the tension employed, the binder will merely support the breasts or actually compress them. The binder is cut out of moderately heavy unbleached muslin; edges should be "overcast" to prevent fraying. By enlarging the diagram to 19x36 inches, and tracing out the figure on the squares, the pattern may be obtained.



Cooke's breast binder.

Section Cesarean in Moribunda.—Prokess⁷ reports a case of Cesarean section in a primipara 25 years old, who arrived at the hospital moribund and in an unconscious condition. A premature child was obtained, which continued to live and left the hospital in good health. The woman died eight hours post partum. Postmortem showed thrombosis of the lateral sinuses and pulmonary edema.

Cesarean Section.—Gerboud¹³ discusses the various incisions which have been employed in opening the uterus. Of these he favors one which is longitudinal and extends along the anterior surface of the uterus from the ring of Bandl as far as the fundus, if necessary. The transverse incision of the fundus may be employed in some cases.

The Cure and Prevention of Uterine Retrodisplacements during the Puerperium.—In cases of retroflexion pre-dating pregnancy, Rissmann⁸ advises the introduction of a large pessary about the fifth or sixth day post partum. He selects the fifth day because at that period coils of intestines

descend between the uterus and abdominal wall. Besides the pessary, the patient is urged to assume periodically the genu-pectoral position. The author warns against keeping the patient in the continuous recumbent position; puerperæ should assume by preference the lateral position.

Dermoid Cysts.—Eischer⁹ removed a large ovarian tumor, the size of a child's head and obstructing the pelvic outlet, from a multipara eight months pregnant. The tumor, located in Douglas' cul-de-sac, was a dermoid cyst; it was removed through an opening in the posterior fornix. Slight labor pains appeared after the operation; the woman, however, went to full term, when she was delivered of a living child without any difficulty.

Tetanus Puerperalis.—Kentmann¹⁰ publishes a graphic description of a fatal case of puerperal tetanus. The woman, a IIIpara, 29 years, perfectly healthy, experienced a severe fall and in consequence aborted when about three months pregnant. The attending midwife stated that no vaginal examination was made. She administered, however, a vaginal douche with patient's own syringe. About six days post abortum the first symptoms of tetanus were noticed, consisting of stiffness of the neck and difficulty in deglutition. These were soon followed by all the characteristic symptoms, and in spite of antitoxin injections and all other approved methods of treatment, patient perished two days later. The author has collected 44 cases besides his own, and discusses the etiology of this rare but terrible sequel of the puerperium.

Pregnancy and Normal Delivery One and a Half Years after Removal of Both Ovaries.—Kossmann¹¹ reports the following unique case: On November 12, 1895, he extirpated both ovaries in a woman who suffered from oöphoritis. The tubes were not removed. Vaginofixation completed the operation. About one and a half years later the husband reported his wife pregnant, which was verified at a subsequent examination. December 2 Kossmann was summoned to patient, but upon arrival (two and a half hours after beginning of labor) found her delivered of a living child. It must be surmised that particles of ovarian tissue were left behind, which remained active. At the time of this report patient is again pregnant.

Puerperal Mastitis.—Brouha¹² reports such a case on account of its occurrence at a period soon after labor. The first symptoms were noticed within twelve hours after delivery and before the child had been nursed. No causative lesion of the breast could be found and no infection of the genital tract was present. The writer attributes the mastitis to the efforts before labor to obtain perfect cleanliness of the nipples, during which the germs may have entered the breast through some slight solution of continuity of its surface.

Vegetations of the Vulva in Pregnant Women.—A. Lefer¹³ holds that during pregnancy, as well as at other times, the existence of vegetations upon the vulva is due simply to irritating discharges from the vagina or urethra. Lack of

cleanliness is a very important cause; diabetes and anemia often predispose. Vegetations usually diminish after pregnancy ends, but generally do not completely disappear. They have been treated by various caustics, but are preferably removed with scissors, with subsequent canterization with silver nitrate.

Hysterectomy for Puerperal Infection.—R. Bonamy¹³ gives as indications for this operation: failure of other treatment, especially curettage; increase of constitutional symptoms; the cause of infection, such as retained placenta; general peritonitis; puerperal infection in a case requiring Cesarean section. He calls attention to the necessity of absolute diagnosis of the cause of infection, and states that acute septicemia and general weakness, without streptococci in the blood, are absolute contraindications for operation.

Dystocia due to Bandl's Ring.—C. Hahl¹⁴ relates the following history: Patient 24 years old; always well except for one miscarriage; had never received gynecological treatment. Labor at term began the day before admission to the Helsingfors Maternity Hospital. Cervix admitted three fingers; fundus contracted. Ten centimetres above the cervical opening was a stenosis, two centimetres in diameter, with rigid margin; above this the fetal head. The child being dead, the stenosis was forcibly dilated, the cranioclast and basiotribe applied ineffectually, and finally a knee was drawn down and delivery completed. At the time of discharge from the hospital the uterine sound met the annular obstruction 6.5 centimetres from the external os.

GYNECOLOGY AND ABDOMINAL SURGERY.

Hysteromyomectomy.—Otto G. Ramsey¹⁵ describes an unusual method of performing this operation. The incision was made in the median line rather high up to avoid an elevated bladder. On examination it was found that the tumor mass could not be delivered through the incision usually made in a hysteromyomectomy, and on further examination the reason for this was discovered to be the extension of the growth into the cul-de-sac. The tubes, with the broad ligaments and ovaries, were found raised up, but lying somewhat anterior to the main mass of tumor, and on tracing them to their origin the tumor was found to have arisen entirely from the fundus and posterior surface of the uterus, and the cervix and lower portion of the body of the uterus could be recognized lying, covered by the bladder, on the anterior surface of the tumor proper.

In the first place, the vesical peritoneal reflexion on to the uterus, which was much higher than usual, was definitely recognized and the peritoneum at this point incised. The bladder was then pushed down for a distance of five or six centimetres, exposing the lower portion of the body of the uterus and the cervix. When this had been accomplished, the uterine

vessels on each side could be felt pulsating distinctly where they passed to the cervix. The plan of the operation which it was then determined to follow was to tie the uterine vessels on both sides, then to cut across the cervix, and after that to deliver the tumor from the cul-de-sac, thus reversing the usual steps in the operation. The ovaries were freed from the tumor by a series of ligatures near the uterine cornu, as it was the intention not to remove them; this was easily accomplished, as their relations were not much distorted from the normal. The uterine arteries were tied just at the point where they curve up to reach the cervix. Then, as previously determined, the uterus was cut across from side to side, thus loosening the tumor entirely from its cervical and broad-ligament attachments. The tumor was then fixed in the abdominal cavity only by its extension into the cul-de-sac; on attempting to raise it from this position it was found densely adherent to the whole cul-de-sac and to the rectum posteriorly. These adhesions were carefully separated by raising the tumor slowly and dividing them with the finger as they came into view. The densest adhesions were found between the rectum and the tumor, and here some difficulty was experienced in the detachment, though a slow removal prevented any injury to the rectal coats. After removal of the tumor the remainder of the operation was carried out in the usual manner, the amputated cervix was closed in with catgut sutures, and the bare area on the floor of the pelvis covered by drawing the anterior and the posterior layers of the peritoneum together with catgut sutures. The large, over-distended bladder was left puckered over the cervix, and the wound appeared as usual after a normal hysteromyomectomy. Several oozing points on the rectum were checked by fine catgut sutures, the peritoneal cavity was cleansed, and the abdominal incision closed in the usual manner.

The convalescence was normal, save for a slight collection of blood above the stump of the cervix between it and the bladder, which was easily evacuated by dilating the cervical canal; otherwise the patient recovered in a perfectly satisfactory manner.

Extra-abdominal Shortening of the Round Ligaments.—A. H. Goelet¹⁶ makes an inch-long incision over the internal ring parallel with Poupart's ligament. This incision extends through the skin, underlying fat and fascia, down to the external oblique muscle, taking care not to divide any of the vessels encountered, which is accomplished by pulling them aside by means of blunt hooks. Retractors are inserted, including all the structures separated down to the external oblique muscle, and with these the margins of the wound are drawn apart so as to enlarge the field of operation. Poupart's ligament, which serves as a landmark, is exposed by retracting the lower margin of the wound while traction upon the upper margin is relaxed. A point about two lines above Poupart's, midway between the angles of the incision, is selected, and with a scal-

pel the aponeurosis of the external oblique muscle is divided for a distance of a quarter of an inch only in the direction of the fibres of the muscle. The two blunt hooks are then inserted into this incision, and the fibres of the muscle are separated down to the inguinal canal. Through this opening in the roof of the canal a little below the internal ring the round ligament is sought. With one blunt hook the roof of the canal constituting the upper margin of the incision is lifted up, and with another blunt hook, inserted sideways and directed upward, the ligament is caught and drawn out. To avoid handling the ligament a thread of stout silk is passed through the loop as soon as it is drawn up through the incision, and the two ends are caught with a hemostatic clamp close to the ligament. Traction is then made on the ligament until all the slack is drawn out. The peritoneal covering that draws out with the ligament is either stripped back or is incised all around so the ligament will play easily through the ring. The ligaments should be drawn out sufficiently to bring the fundus well forward against the anterior abdominal wall. Usually the redundant ligament drawn out will measure from five to seven inches.

At this stage the first sustaining suture is introduced. The suture material used is silkworm gut. It is threaded directly into a large quarter-curved needle. This suture serves the double purpose of securing the ligament as it emerges through the incision in the roof of the canal, preventing it from retracting into the abdomen, and also aids in closing the wound in the integument. It is passed from above downward, being made to enter the integument a quarter of an inch from the upper margin of the incision, penetrates the underlying fat and fascia, then the margins of the incision in the roof of the canal and the thick part of the round ligament as it emerges through this incision, and is brought out on the integument below at a point opposite its insertion above. This suture is not tied until the second has been introduced, but the ends are grasped with a hemostatic clamp so as to prevent it being inadvertently pulled out. The redundant loop of round ligament is secured by being woven under the fibres of the external oblique muscle above the canal, and the remaining loop end is folded down across the bottom of the wound on the surface of the muscle. The second suture, which also serves a double purpose by aiding in securing the ligament and closing the wound, is inserted through the integument above, penetrates the thick portion of the round-ligament loop as it emerges from under the oblique muscle, then penetrates the muscle below to hold the ligament flat against its surface, then penetrates the extreme end of the loop of ligament and is brought out upon the surface below at a point opposite its insertion above. The ends of this suture are also caught with a hemostatic forceps. The wound is now flushed with warm normal salt solution, and is closed by tying the upper suture first and the lower one afterward. They are drawn tight enough to approximate the margins of the wound perfectly. Out of 160 cases operated on by the above-described

operation, there have been no failures and no recurrence of the displacement, though in two pregnancy occurred shortly after and full-term children were born within a year after the operation.

Sterilization of Catgut.—Charles A. Elsberg¹⁷ uses the following method: 1. Catgut, freed from fat, is tightly wound in single layers on suitable spools. 2. The spools are boiled for from ten to thirty minutes in a hot saturated solution of ammonium sulphate in water, made by adding chemically pure ammonium sulphate to boiling water until no more will dissolve. 3. Two per cent carbolic-acid solution may be substituted for the water if a quicker sterilization (three to ten minutes) is desired, or 1 : 1000 chromic acid solution if the catgut is to be chromicized. 4. The spools are thoroughly washed by agitation for from one to two minutes in cold or, better, warm sterile water, carbolic acid, or bichloride solution of any strength. 5. The catgut spools are preserved in strong alcohol. 6. For resterilization the catgut spools are boiled for from five to fifteen minutes in any of the solutions, and washed in the same manner as described under 4.

Cysts of the Breast.—Thomas Bryant¹⁸ draws the following conclusions from his experience with cysts of the breast: (1) That simple cysts of the breast are far more common than they are generally believed to be; (2) that they are chiefly found in women during the same period of life as that in which cancer is met with; (3) that they are mostly quite amenable to local treatment without the sacrifice of the breast gland in which they are situated; and (4) that there is no reason to believe that women who have these cysts are more prone to cancer than those who have them not.

Of 230 cases of breast disease there were 163 of diagnosed cancer or sarcomatous disease and 67 of diagnosed cystic disease, the cystic disease bearing to the former, or cancerous disease, the relative proportion of 29.1 to 70.9 per cent.

To prove his second conclusion he gives the following figures: Of 44 cases of cysts of the breast in which the diagnosis was confirmed by operation, 11 occurred in women under 40 years of age and 33 in women over 40 years. Out of 23 cases diagnosed but not proved to be examples of the same affection, 4 were under and 19 were over 40 years of age, the conclusion being that 52 of the whole number of 67 cases, or 77.5 per cent, took place in women over 40 years of age. To help the diagnosis a careful local examination should be made, with the patient placed flat upon a couch and the breast gland made to rest upon the ribs. when, should the surgeon's sense of touch be keen enough to detect an elasticity in the swelling, or even fluctuation, the diagnosis of a cyst may reasonably be hazarded, although what the nature of the contents of the cyst may be cannot be otherwise than obscure. If a clear serous fluid can be made to flow from the nipple by manipulation of or pressure upon the tumor, the probabilities of the cyst being a simple serous cyst are much enhanced. If the fluid be

brown or blood-stained the existence of an intracystic growth of some kind may be suspected, and if the discharge be more like pure blood the presence of a soft, solid growth, sarcomatous or carcinomatous, should be feared. When, however, there is no nipple discharge, as is often the case, and the other conditions are the same, the chances against the swelling being caused by a cyst are not lessened, although the view of the supposed cystic enlargement of the breast being due to the presence of some soft cancerous growth would be encouraged.

To make the diagnosis certain an exploratory incision should be undertaken, when, if the lump be due to a cyst, it should be dealt with as already described; and should the tumor be due to a cancerous infiltration or sarcomatous disease, the breast gland should be removed, the operation being in these circumstances undertaken at the period of the tumor's growth after which the most favorable result may fairly be expected. To allow a cyst to enlarge and persist for months, in order to make its diagnosis more certain, is a timid and dangerous practice; and to allow a tumor which may be cancerous to drift until collateral symptoms have made their appearance, so as to make its diagnosis certain, is neglectful and culpable; for to the patient delay in removing the local disease, whether cystic or solid, is fraught with danger, whereas by early interference nothing but good can be achieved.

Antistreptococcic Serum.—J. W. Washbourn¹⁹ administers the serum in exactly the same way as diphtheria serum, careful aseptic precautions being observed. The dose is 10 to 30 cubic centimetres, which may be given two or three times a day in acute cases and once a day in chronic cases. If possible it should be injected near the site of infection, for it has been experimentally shown to be more efficacious when administered in this way. The treatment should be commenced as early as possible; nevertheless, in many of the successful cases, the treatment was begun late. If the serum appears to have no effect, it is well to try a fresh sample obtained from another source. A polyvalent serum, as suggested by Van de Velde, may prove to be more universally useful than that at present supplied.

The therapeutic effects observed in successful cases are a lowering of temperature, a subsidence of inflammation, and a general improvement in patient's condition. After-effects similar to those following the use of diphtheria serum may occur. These effects are due to some constituent of the serum other than the protective substance.

Uncontaminated Urine.—H. A. Kelly¹⁸ for some years has used a glass catheter. Each patient has her own catheter for her exclusive use as long as she needs one. It is sterilized by boiling five minutes in a soda solution, and then placed in an open-mouthed bottle filled with a five per cent carbolic solution or 1:1000 bichloride of mercury, with some cotton on the bottom to protect the end of the catheter. Just before using it may be boiled again in soda solution. The nurse then scrubs

her hands carefully and places the patient on the bed-pan, and exposes the vulva and separates the labia so as to expose the urethral orifice. She now takes a pledget of cotton, saturated with a boric acid solution, in the grasp of a forceps, and with this thoroughly cleanses the urethral orifice. She now draws two sterile finger-cots over her thumb and finger of the right hand, and, thus well protected, grasps the catheter by its outer end and removes it from the receptacle, rinses it off in sterile water, and gently introduces it into the urethra, allowing it to take its own way into the bladder, and never under any circumstances using force.

Kelly points out the fact that the catheter never completely empties the bladder when the patient is lying down, and if there is any cystitis it is best to wash it out, using a large catheter with a strong curve at its vesical end. After the irrigation the curved end is turned downward toward the base of the bladder.

When he desires urine for bacteriological study he obtains it in the following manner: The catheter is sterilized with a piece of rubber tubing covering an inch or more of its outer end and projecting about two inches beyond it. It is then introduced, preferably by the physician, with the precautions described, and the urine allowed to escape for a few seconds, then the rubber sleeve is removed and the urine collected in a test tube. In 20 cases sterile urine was taken as a control experiment and in every instance it remained sterile.

In securing uncontaminated urine from the bladder he proceeds in a similar manner. The bladder is washed out and emptied. The patient is placed in the knee-chest posture and the urethral orifice exposed, cleaned, and the catheter passed. The catheter is sterilized with a rubber sleeve protecting and projecting beyond the end. The operator draws on the hand which grasps the catheter a sterilized half-glove, and grasping the catheter, protected also if needed by a sterile towel on his shoulder, he introduces the end into the ureter and pushes it on up into the kidney. The patient is then allowed to lie down on her side or back, the sleeve is pulled off, and the sterile end is placed in a sterile test tube held in place by a cotton plug.

Treatment of Fibromyoma of the Uterus.—T. B. Grimsdale²⁰ puts among the absolute indications for operation the jamming down of the tumor by a fetal head, the torsion of the pedicle, inflammation and suppuration of the tumor, and he has come across cases where the absolute indication was chronic peritonitis. The relative indications for operation can be divided into (1) vaginal and (2) abdominal indications. The relative indications are as follows: Rapid growth of tumor, pain, size and weight, pressure symptoms, bleeding, fetid vaginal discharge.

Speaking generally, one might say that vaginal symptoms indicate the vaginal route, while abdominal symptoms indicate the abdominal route. The chief advantages claimed by the vaginal route are (1) safety; this advantage, as far as infection

from without is concerned, is no safer than the abdominal route; as regards accidents, Grimsdale does not think the advantage lies with the vaginal route. (2) Avoidance of hernia; this advantage is losing weight with the later methods of treating the abdominal wound. (3) The third advantage is the absence of a visible scar; this is the only advantage Grimsdale gives against the abdominal route in a comparison of the two routes.

The disadvantages of the vaginal operation are: First, we must all admit the possibility of making mistakes in the diagnosis. Slight mistakes in diagnosis are of less importance when operating through the abdomen. Next, there is the difficulty and tediousness of removing a large fibroid and the necessity of having to cut it to pieces in order to deliver it. We may find out during the operation that it is possible to save the uterus and enucleate the tumor. If we are operating through the abdomen we find this out early. If we are operating through the vagina we probably find it out too late to save the uterus.

In the treatment of the pedicle he prefers Baer's method, with the modification that he leaves the ovaries. He does not use drainage.

Small tumors, even if they are numerous, may be removed by myomectomy by either route. Distortion of the uterus appears to Grimsdale to be the point of importance in deciding whether myomectomy is applicable to any particular case.

The value of oöphorectomy and ligature of arteries is very variable. He does not think oöphorectomy a good method of attacking uterine fibroids. He always leaves the ovaries in place, unless there is some very cogent reason for their removal.

Alcohol Therapy.—Seitz²¹ reports a series of cases from Winckel's clinic in which alcohol was employed in the form of abdominal compresses and vaginal tampons. According to Buchner, alcohol, if applied to the body surface, produces arterial hyperemia. Seitz presumed that, owing to the bactericidal and resorptive faculties of the arterial blood, this active hyperemia might accomplish some curative effects. Alcohol was used in the form of abdominal compresses saturated with 96 per cent alcohol and covered with gutta-percha tissue. The first effect of such compresses is a sensation of warmth, succeeded by that of cold owing to the rapid evaporation of the alcohol. Except a slight itching and maceration of the skin, this treatment produced no bad effects, but a study of the cases must also convince one to the belief that curative effects were also wanting. Another mode of applying alcohol consists in the introduction of vaginal tampons saturated with a 35 per cent dilution of alcohol. The cases thus treated comprised chronic metritis, gonorrheal infections, and uterine displacements. The only benefit obtained consisted in a diminution of vaginal secretions in cases of purulent vaginitis, and even here of only temporary effects.

Prolapse of the Urethral Mucosa.—This prolapse is, according to J. Voillemin,¹³ rare in women from 20 to 35 years old, and occurs most frequently between the ages of 2 and 15 and between 40 and 75. It is always due to some strain, such as coughing, constipation, etc. If slight it may be reduced and kept in place by pressure and rest; astringent washes and cauterization with silver nitrate may be employed. If larger, removal by the thermocautery is feasible.

Effects of Hysterectomy.—R. Abrant¹⁵ states that when both uterus and ovaries are removed symptoms occur which resemble those following oöphorectomy. Removal of the uterus alone generally causes a diminution or abolition of sexual desire and sensation.

Uterine Fibroids.—Heinricius¹⁴ gives the history of a woman 31 years of age who gave birth to twins, the first small and still-born, the other delivered after craniotomy on account of a tumor interfering with labor. When operated upon, a myoma the size of an ostrich egg was found lying free in Douglas' cul-de-sac. On the posterior surface of the uterus near the fundus was a cicatrix which pointed to this as the origin of the myoma, whose pedicle had apparently atrophied.

Salpingo-oöphoritis.—F. Jayle²² advocates the conservation of part or the whole of an ovary, when this is healthy, in operations for salpingo-oöphoritis. He wishes to secure the effects of the ovary as a gland of internal secretion, as well as to allow the continuation of ovulation and menstruation for moral effect.

Cancer of the Uterus.—T. Jonnesco³ reports an inoperable case of cancer of the uterus and vagina with a discharge of blood and ichorous pus in which he ligated, through a suprapubic incision, the hypogastric, uterine, and utero-ovarian arteries and those of the round ligaments. At the time of reporting the case the discharge and bleeding had ceased and the patient's general condition had improved. Jonnesco insists upon the importance of ligating the uterine arteries as far from the uterus as possible, before it gives off branches.

Torsion of Pedicle of Ovarian Cyst.—Vitrac⁶ presents the history of a case of torsion of the pedicle of an ovarian cyst which simulated appendicitis so closely that it was operated upon as appendicitis and the supposed appendix removed.

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DISEASES OF CHILDREN.

Appendicitis with an Abnormal Onset.—M. Breton¹ reports a case of a young girl of 13 who for several years had been treated for muco-membranous enteritis and suffered from chronic constipation with occasional attacks of diarrhea. November 16 the patient awoke feeling generally uncomfortable, went to school as usual, and ate her lunch at noon. At 2 o'clock she had an attack of vomiting, went home, and was put to bed complaining of chilliness. Vomiting reappeared. There was headache, but no abdominal pain. No meteorism, abdomen absolutely flaccid. No painful point to be found. Temperature 37.5° (99.6° F.), pulse 78. Face drawn and eyes hollow. The next day the symptoms were all improved; on the 18th the temperature was 37.5° , but the pulse 108. There was slight sensitiveness to pressure in the pubic region. That evening pulse 132° , temperature 39° (102.2° F.), slight meteorism, appendicitis evident. Operation performed on the 19th, but the child died of septicemia on the 25th. The question as to the onset of the appendicitis is difficult to solve. Vomiting and a drawn expression of face would not justify operation, and yet in this case an earlier operation might have saved life.

Bacilli, Acid-loving, in Nurslings' Stools.—Finkelstein² has found that on acid media it is possible to cultivate a peculiarly branched and thread-forming micro-organism from the stools of healthy breast- and bottle-fed infants, and this bacterium is probably identical with Moro's bacillus acidophilus. Other bacteria are found, though they are not constant, and thus the number of acid-loving bacilli in the healthy intestine are at least two, if not three or four, in number. In some pathological states the number of acid bacteria increase so much that they are present almost in pure culture. Sometimes these are identical with the organisms present in the healthy intestines, sometimes they show some cultural differences sufficiently pronounced to justify their separation into other species. In form the bacteria are either threads, often breaking up into forms like streptococci, or slender, curved rods growing into short threads only. The diseases from which the last-named forms have been isolated are characterized by infectiousness, severe nervous symptoms, and resistance to dietary therapy. It is not as yet possible to decide whether the increase of the acid bacilli are an etiological or a symptomatological factor in the disease. With the ordinary laboratory animals it has not been possible to prove these organisms pathogenic. Young goats were found to be suitable for experiments with these bacteria. While feeding with healthy stools causes only a passing illness, feeding with stools from very sick children and with pure cultures in milk causes death of the animal in three weeks with symptoms of extreme emaciation and subnormal temperature.

Cardiac Murmurs, the Question of Functional.—Swarzensky³ observed a 17-month-old child with congenital syphilis, marked atrophy, enlarged liver and spleen, pneumonia,

and apparent congenital heart disease, indicated by a soft, systolic apex murmur, heard over the pulmonary artery, but not over the aorta nor at the back. Two days before death the murmur could not be heard. At the autopsy the heart valves were found to be normal; the muscle was anemic and the right ventricle slightly dilated; there was no congenital lesion, and the murmur must have been a functional one. The dilatation of the right ventricle was so slight that the tricuspid valves were perfectly sufficient. There was a very small oblique opening of the foramen ovale, but this was not sufficient to cause any murmur.

Chorea.—John Lindsay Steven⁴ presents an analytical study of 112 consecutive cases of chorea minor seen by him in dispensary and hospital practice in Glasgow. He divides the cases into those observed in the out-patient room and those observed in the wards.

IN THE OUT-PATIENT DEPARTMENT there were 87. As to *sex*, 23 were males and 64 females. *Age*.—The greatest number occurred between 5 and 15. *Number of attacks*.—In 31 per cent of the cases more than one attack was recorded. *Duration of attacks*.—More than half of the cases lasted under two months, and 15 of them under three months. *The cause of attack*.—Apart from rheumatism, the author has endeavored to ascertain the emotional factors in St. Vitus' dance. In only 30 out of the 87 cases could definite statements be obtained. In at least 26 the exciting cause was emotional; fright, 14 cases; overwork, 2; mental excitement or distress, 3; grief, 1; worry over school examinations, 3; punishment at school, 2; scolding, 1. *Family history*.—In only 56 cases was information obtained. In 30 of these family history negative. In 18 rheumatism had attacked other members of the family; in 11 chorea had occurred; in 5 some other form of nervous affection. *Association with rheumatism and other morbid states*.—No history of rheumatism in 55 out of 81 cases. The author believes the relationship much closer than these figures indicate. In 9 cases there were bronchitis, diseased bone, convulsions, adenitis, idiocy, headaches, or psoriasis. *Condition of the heart*.—In 39 per cent of the cases examined the cardiac condition was abnormal. *Condition of the urine*.—In chorea there is on the whole little tendency to derangement of the renal function. *Distribution and severity of the movements*.—The tables show that cases of moderate severity predominated, and this is probably the usual rule. *Time under observation*.—Thirty-one cases were seen only once; 56 made several visits, many of them having been under treatment for a month or more.

CASES OBSERVED IN THE WARDS. *Sex*.—One male to every 4 females. *Age*.—As in the former table, the greatest number of cases occur between the ages of 5 and 15. *Number of attacks*.—In 56 per cent of the cases more than one attack of the disease had occurred. *Duration of attacks*.—A considerably larger number of the ward cases lasted more than two months, as compared with those seen in the dispensary, which probably means

that the cases admitted to hospital were on the whole more severe. *Causes of attack*.—No cause could be assigned in 16 cases; fright, 7; punishment at school, 1; pregnancy, 1. Emotional causes are shown by both series of cases to be less frequent than one would expect in chorea. *Family history*.—In about 50 per cent of the cases a distinct tendency to rheumatism in the family can be made out in chorea. *Association with rheumatism and other morbid states*.—About 50 per cent had a definite rheumatic history; bronchitis, 1 case; albuminuric, 1; scarlet fever, 3. *Condition of the heart*.—In 60 per cent of the cases there was unmistakable valvular affection of the heart. *Condition of the urine*.—Normal in 20 cases, abnormal in 1. *Distribution and severity of the movements*.—As compared with the dispensary series, the cases admitted into the wards are altogether of a more severe type. *Time under observation*.—One month and under, 9 cases; two months and under, 11; three, 3; four, 2. The author leaves the question of treatment for a future article.

Dermoid Cyst of the Ovary in a Child of Seven Years.—James Herbert McKee^o reports the case of a child seen in September, 1898. Her previous history, barring an attack of furunculosis, was devoid of interest. The history of the present trouble dated back a year, the patient having during that time suffered three or four times with severe paroxysmal pain referred to the right half of the abdomen. Upon inspection the abdomen was seen to be asymmetrically enlarged, the protrusion being bean-shaped in outline. By exclusion a diagnosis of probable sarcoma of the left kidney was made, supported by these positive points: 1. The history of rapid enlargement of the abdomen. 2. The shape and position of the tumor and its smooth, firm outline. 3. The fact that the tumor could be raised from the left renal region, and that in the knee-chest position the normal kidney dulness apparently disappeared. 4. Supporting the other evidence was the fact that renal sarcoma is the most common of large tumors found in the abdomen of the child. Operation was performed and a large cystic tumor of the ovary was found, consisting of two major compartments or sub-cysts united by an isthmus of apparently solid material. Fibrous trabeculæ traversed the cavities at various points. Each compartment contained smaller cysts; hair was found in abundance in the larger cysts, in one place being two inches long. Under microscopic examination the specimen was found to contain skin, hair follicles and hair, sebaceous glands, fat, elastic tissue, muscle fibres, blood vessels, cartilage and bone. Dermoid cysts of the ovary are rare in childhood, and medical literature contains but few references to them. Kelly, however, in the supplement to Keating's "Cyclopedia," mentions 47 cases; 5 more reported cases, including the one described in this article, bring the number of known cases up to 52. In one case, not reported, an almost perfect skull was removed from a dermoid cyst in a child of 7

years. In conclusion, the author lays stress on the following points:

1. In attempting to make a diagnosis of an abdominal tumor in a female infant or child, one should bear in mind that ovarian tumors must be considered as possibilities. 2. As aids to diagnosis, rectal examination under anesthesia, as recommended by Carpenter or Kelly, should be performed as a routine measure; and whenever possible the services of the X-ray should be enlisted. 3. An exploratory incision is not only a justifiable procedure, but it is to be advised whenever a large tumor of the abdomen is found in a child. 4. The cyst removed in the case under discussion is interesting histologically, and the finds represent additional evidence in support of Wilm's theory (quoted in the "American Year Book of Medicine and Surgery," Gould, 1887, page 705).

Direct Examination of the Larynx in Children.—Max Thorner⁶ states that the difficulties encountered in examining the larynx in children may be divided into two classes: First, those which are due to subjective causes, as it were, on account of the age of the patient. Second, those that are due to anatomical conditions in the young child different from those of the adult. In the first place, children are afraid of any manipulation about the mouth and throat, and cannot be expected to aid in the procedure. They fight against the introduction of the mirror, will not intonate, etc., and during these manœuvres the pharynx and entrance of the larynx are more or less violently contracted and the lower pharynx is filled with mucus and saliva—all obstacles which in themselves would be sufficient to prevent any satisfactory examination. In the second place, the anatomic conditions in young children are very unfavorable to making an inspection of the interior of the larynx in the usual manner. The frenulum of the tongue is often so short that it is almost impossible to get hold of the tongue. The height of the mouth is comparatively small, and the uvula depends deeply into the lower pharynx. The larynx itself differs from that of a later age in many respects: the epiglottis is curved on the flat and forms a narrow longitudinal groove; the hyoid bone lies during the first few years overlapping the margin of the thyroid cartilage and entirely covers its highest point anteriorly. By this arrangement the base of the tongue depresses directly the epiglottis, which, having its lateral margins curved, decreases the entrance to the larynx considerably. This narrowing is enhanced through the undue projection of the cornicula and cuneiform cartilages and the narrow and short aryepiglottic folds. Moreover, the axis of the larynx is tilted slightly backward toward the vertebral column on a level with the cricoid cartilage. In view of all these obstacles to laryngoscopic examination, it is no wonder that Kirstein's method of direct examination of the larynx, or examination without a mirror, was welcomed as rendering the examination of the larynx in children feasible. Its underlying

principle rests upon the possibility of bringing the imaginary axis of the laryngo-tracheal tube and of the buccal cavity, which are joined at an obtuse angle, into a straight line. This is effected by placing a specially constructed tongue spatula well back upon the tongue, so that its distal end rests upon the base of the tongue and the notched tip receives the median glosso-epiglottic ligament, and then by pushing the tongue, through firm forward and downward pressure, out of the way. In doing this the epiglottis is elevated through the pressure upon the median glosso-epiglottic ligament, and thus it is possible to get a direct view of the larynx, well illuminated by a reflector or any of the electric forehead lamps, during which manipulation the head of the patient should preferably be slightly stretched forward, while the examiner stands in front of the patient, so that he looks from above downward into the bucco-laryngeal cavity. The author finds that by this method of Kirstein one obtains an excellent view of the lower pharynx, of the epiglottis and part of the vestibule, in many cases of the arytenoid cartilages also. To see the ventricular bands he has found impossible, and only in extremely rare cases could he succeed in seeing the glottis. Escat's spatula has been used in some cases, giving a more or less perfect view of the vestibule of the larynx, but rarely of the glottis. These methods, although imperfect, he says are a step forward and a distinct advantage over our former helpless inactivity, when in most cases we were only too often compelled to base our diagnostic and therapeutic actions entirely upon the urgency of the symptoms.

Eczema, Treatment of, in Childhood.—Rille⁷ finds that a salve of salicylic-lanolin (one-half to one per cent) gives excellent results in the treatment of eczema in children. As a prophylactic measure it were best to omit vaccination in children suffering from eczema, especially of the face, as disfiguring marks, resulting from general vaccinia, have been noted in such cases.

Elimination by the Urine of Sugars introduced by the Digestive Tract or Subcutaneously in Children.—As a result of many experiments, P. Nobécourt^{*} concludes that the intestinal mucous membrane is endowed with marked divertive power toward lactose. This property would appear to be more marked in young children than in adults, but there are exceptions. The same property exists in regard to saccharose. With lactose and saccharose no glycosuria has been observed in normal children. In childhood there appears to be more marked action upon glucose than in the adult.

Empyema of the Mastoid Antrum with Necrosis of the Antrum Wall.—Neubauer⁹ reports the case of a 2-year old rachitic boy who had a left otitis media purulenta dating from the fifth month of his life. During an attack of measles and broncho-pneumonia the ear discharge became more profuse, then much diminished, and the post-auricular region began to swell. The upper wall of the external auditory

meatus bulged into the lumen, and the removal of a polyp from the meatus gave exit to much fetid pus. The tympanic membrane could not be seen. Operation was done under narcosis, when it was found that the upper external wall of the mastoid antrum had been entirely destroyed by the suppurative process, making a wide opening between the mastoid and tympanic cavities. On the day following the operation the child was free from fever.

Hypertrophic Pyloric Stenosis in Infancy.—Eric Pritchard¹⁰ gives a complete list of all the published cases occurring in infancy, to the number of 23, appending a case of his own. His conclusions are: 1. That the hypertrophy is secondary to over-action of the sphincter, and the stenosis chiefly due to spasm. 2. That the stenosis as measured post mortem is but an accurate gauge of its organic degree during life. 3. That over-action and inco-ordinated contractions of the sphincter may be due to some fault in the nervous mechanism. 4. That injudicious feeding, either quantitatively or qualitatively, may be a contributory factor of the nervous inco-ordination. A postscript to the article states that several other cases have recently been reported.

Inaccuracies of Home Modification of Cow's Milk.—Charles E. Woodruff¹¹ writes of the extreme difficulty of modifying milk accurately at home in accordance with modern formulæ. He speaks of the various errors that are liable to occur. In the case of healthy infants absolute accuracy in the composition of the milk preparation is not specially necessary. Mother's milk varies greatly, according to food, exercise, mental state, etc., and, as such variation has been going on for untold thousands of years, it must be normal for babies to tolerate slight changes in food. When the digestion is feeble or the child is sick, of course greater accuracy is necessary. Careful directions may be given, but are not always carefully carried out. Infants also vary so greatly that it is difficult to estimate beforehand what one will take. Specialists are not at all agreed as to the exact proportion of proteids, fats, and sugars to use, and, though they all recommend essentially the same things, the variations are great enough to show us that extreme exactness is not necessary. To summarize, the average of the recommendations of specialists is: 1. That diluted cream be used, beginning with about $13\frac{1}{2}$ per cent of fat and gradually reaching pure cow's milk in fourteen months. 2. That the dilution of this cream is the important process to get the proteids low, and that in the beginning there should be $5\frac{1}{2}$ parts of diluent to one of cream, the proportion of water rapidly diminishing for two months, and more gradually thereafter. 3. The ratio of the proteids desired to that in the cream (4) is the ratio of the ounces of cream to the total ounces. Thus, if $1\frac{1}{2}$ per cent of proteid is required, we must have $1\frac{1}{2}$ parts of cream to 4 of the daily feeding, or 13 ounces of cream and 21 of water, making a total of 34. 4. Beginning with three level tablespoonfuls of milk sugar a day, this is rapidly increased

until the third month, when six are added, and beginning in the ninth month the sugar is gradually diminished until at fifteen months none is added.

Intubation and Tracheotomy in Cases of Croup Secondary to Measles.—M. Netter¹² from his hospital experience is decidedly of the opinion that tracheotomy gives better results than intubation, the latter almost invariably leading to ulcerations and predisposing to broncho-pneumonia. It is not, however, to be altogether abandoned, but may often be used to advantage in the pre-eruptive stage of measles, at which time the accidents are usually spasmodic and do not involve the mucous membrane. In tardy croup, when the measles may be considered as quite cured, it is also frequently valuable. But when grave laryngeal accidents occur after the appearance and during the first two weeks necessitate intervention, this should be tracheotomy.

Kering's Sign in Infants.—Without wishing to belittle the value of Kering's sign in meningitis in the adult and in older children, Frederick A. Packard¹⁰ calls attention to the possible error that might arise from attaching too much importance to it in the case of infants. In 3 cases of meningitis seen by the author, the patients being 16 months, 4 months, and 16 months old respectively, this sign (the impossibility of complete extension of the leg on the thigh in the sitting posture on the edge of the bed) was absent, but after death the autopsy proved that there had been meningitis.

Laryngeal Papillomata in Children.—Maurice Boulay¹³ draws the following conclusions from his study of cases and from the literature of the subject: *Extraction through the natural passages* must first be attempted. Should this not be possible, one of two conditions will be present: 1. The child will have trouble in phonation, but no respiratory trouble. Try expectant treatment for a while. Keep on the watch for one of two results—either the papillomata will disappear spontaneously, or the child will become old enough to be so reasonable and docile that the growth may be operated upon through the natural passages. 2. The child will have dyspnea. Perform tracheotomy, leave the canula in place, and watch for results. (a) *The papillomata disappear*: remove the canula as soon as it is certain that no trace of the neoplasm remains. If a tracheal fistula remains, freshen its edges and suture the soft peritracheal parts. It is not necessary to include the tracheal walls in the suture. (b) *The papillomata* remain stationary or increase in size. Again attempt removal by the natural passages, which may be easier after tracheotomy. Should this be unsuccessful, if the child is more than 12 years old, wait again, for it may soon be possible to remove the growth through the larynx. In younger children perform a thyrotomy; the operation is a simple one.

Malt Coffee (or Malt Infusion) as an Infant Food.—M. R. Morden,¹⁴ from experience in his own practice, holds that:

1. Malt coffee well merits a high standing as an infant food. 2. It will surely succeed in many cases when all preparations of milk, pure or combined with digestives, have failed. 3. All the children raised on it, so far as the author has observed, have grown up strong and with a good digestion. 4. It will sometimes succeed best as a pure, strong infusion, and in other cases will do better when diluted 10 or 15 per cent with milk. 5. It is probably better to give it from a bottle, warmed, though many children 4 to 8 months old will take it tepid or fairly cool without harm. 6. Some mothers prepare it two or three times a day, and some only once a day. 7. Children are exceedingly fond of it where it agrees well, and have lively spirits after each feeding. 8. The author has always given the milk preparations first trial, and malt coffee second before resorting to so-called infant foods. 9. In a few cases he has known malt coffee not to agree and has gone back to milk. 10. In a far greater number of cases where a child did not do well on milk it soon revived and grew strong from the use of malt coffee. The author advises pure, good, sound malt obtained from a reliable brewer, carefully roasted and put in fruit cans. Then use three or four table-spoonfuls to each pint of hot water; steep twenty to thirty minutes. The nutrients of malt infusion consist of maltose, dextrin, diastase, and other albuminoids, with a small amount of barley salts. Small amounts of milk and sugar may be added, but are not necessary.

Meningitis Suppurativa due to the Bacterium Lactis Aerogenes.—Scheib¹⁵ describes the first case of meningitis caused by this bacterium. The patient was a twin girl, 8 days old, whose death was ascribed to debility. The autopsy showed a general cerebral, purulent leptomeningitis, with pus in both tympanic cavities. The nasal mucous membrane was normal; there was some congenital atelectasis. Cover-glass preparations showed the same bacilli present in the meningeal pus, the nose, and both ears. Cultures from the meningeal pus were identified as those of Escherich's bacterium lactis aerogenes, and white mice, guinea-pigs, and rabbits were killed by inoculations with the cultures. The meningitis was undoubtedly secondary to the suppurative otitis media.

Myocarditis in Infancy and Childhood.—According to Henry Koplik,¹⁶ not enough has been said in literature in regard to this affection; from the standpoint of daily practice it would not be over-statement to say that myocarditis, if not the most trying, is one of the most important conditions met at the bedside of the sick infant and child. It is sometimes the only thing that stands in the way of the recovery of the patient. In the acute infectious diseases it is an entity, distinct, always threatening, and sometimes fatal. The myocardium is peculiarly susceptible to the action of any toxin, whether it is that of abrin or that of the diphtheria bacillus. The fever plays but a subordinate rôle. This latter fact must impress itself on the mind of the physician, for some of the most

toxic and fatal diphtherias or pneumonias run their course with a low fever demanding no therapeutic measure of itself. The symptoms, so far as the heart is concerned, are not due to changes in the nerves or ganglia primarily, but to lesions of the muscle cell itself. From a study of the literature we are impressed by the fact of the universal presence of heart changes at autopsy. This forces us to the conclusion, important to the physician, that myocarditis is more frequent than supposed, and is not only a great factor in the semiology of the infectious diseases, but is not always fatal. In other words, a heart may have been the seat of myocardiac changes and still in the end be restored to the normal. There may be conclusive experiments in the future which will justify the belief of Zenker, Waldeyer, and Hayem that the diseased muscle fibre of the heart is capable of regeneration in the same manner as the injured nerve fibre, otherwise we would have the vast number of adult hearts the seat of disease as a result of the repeated toxemias of infancy and childhood. One of the most striking effects of the serum therapy in diphtheria has been the uniform assertion, of those whose observations are worthy of consideration, of the supporting action of the injections. A child is found sitting up and playing in bed the second day after the injection, while the throat is still covered with membrane—which means that the toxic action of the disease has been arrested not only on the various organs, but on the muscle fibre of the heart. Prolonged malarial poisoning may compromise the heart muscle; the pneumonias of infancy and childhood furnish their quota of disturbances of heart action; pertussis causes weak and insufficient heart action. The prognosis of rheumatic cardiac affection is much more favorable in infants and children than in adults. The most trying cases of heart weakness with degeneration of muscle fibre are those of adherent pericardium. The degenerative changes in the muscle fibre of the heart are more serious than in any other form of rheumatic heart disease. The diagnosis of myocarditis during life is not always possible, but there are many cases in which certain symptoms of cardiac weakness should put us on our guard. If, in the course of an infectious disease, we have attacks of faintness, pallor, vomiting, disturbed and very irregular heart action, a persistent distortion of the respiration and pulse ratio as in adherent pericardium, it is certainly significant, especially if these attacks have a tendency to recur. If examination of the heart shows extreme weakness of the apex beat, weakness of the first sound or disappearance of its muscular quality, greater intensity of the second sound at the apex, with intensification of the second sound at the pulmonic orifice, we certainly in these have danger signals of greatest moment. If in addition, as in pertussis, we have other signs of cardiac insufficiency, such as a slight systolic blow at the apex, edema of the face and extremities, pallor and cyanosis, disinclination to exertion, constant drowsiness, it would be certainly narrow, in view of our pathological and

experimental knowledge, not to entertain the possible existence of serious degenerative changes in the heart muscle. Therapeutic measures must not only reduce temperature, but in reducing temperature they must not compromise the utility of the heart. We must foster the modern tendency of treatment, which is to support the strength of the patient. Even in a degenerated heart there is healthy tissue on which our drugs and methods are supposed to act. We must not exhaust these healthy foci by overwhelming them with harsh measures or large doses of powerful drugs. The areas of degeneration must be healed, and in time there may be regeneration of new tissue. The hope of these cases lies in well-sustained nutrition, carefully and persistently regulated.

Nevus and Similar Congenital Neoplasms, Treatment of.—Holländer¹⁷ finds that the best method of treating inoperable cases is by means of "air cauterization," that is, the passage of a current of hot air over the nevus, and its application until incision proves the blood spaces to be empty and the part to be mummified. The advantages of this method over the old thermo puncture, etc., are: that one application is usually sufficient; that the operation is bloodless, and even the blood in the tumor is preserved to the body; that the cicatrix is hardly noticeable in mild cases; and that it is applicable to all parts of the body, even to the cavities. Contraindications are: an exclusively subcutaneous position of the nevus, total capillary substitution extending to the mucosa, and cases where extirpation would give quicker results. Photographs of the severest case of angiocavernoma treated by the author within the last ten years, showing the condition before and after operation, are given.

Optic Neuritis in Children.—Leslie Buchanan¹⁸ has seen a number of cases in which children showing no evidence of present bad health suffer from atrophy of the optic nerves; or, again, in which children with but slight signs of disease have moderately acute optic neuritis. All such cases show more or less marked enlargement of the cervical glands. He is of the opinion that unless another distinct cause can be found, if either atrophy or inflammation of both optic nerves be seen in a child or young person, the presence in the neck of enlarged glands, even of very moderate size, is an indication that there may have been, or may be, a meningitis or a tubercular growth in the brain.

Pertussis.—W. R. Norton¹⁹ writes of the treatment of this affection without drugs, describing two methods which are not in general use: (1) the administration of carbonic acid gas by rectum, and (2) the use of the O'Dwyer laryngeal tube. The first was given to 150 children. Of the total number, 143 were apparently decidedly benefited. The vomiting ceased, even in the severe cases, by the second or third day. The number of paroxysms was reduced and the severity diminished. The 7 remaining cases were not helped. The method of administering the gas is to have a wide-mouthed jar supplied with a per-

forated cork, through which is a glass tube extending half-way to the bottom. To the outer end of the glass tube is attached about three feet of flexible rubber tubing which has at the end a detachable hard-rubber nozzle suitable for rectal injections. The bottle is filled about one-third with water; six drachms of bicarbonate of soda are dissolved in this, and there is then added half an ounce of crystals of tartaric acid. As the latter dissolves slowly the gas is liberated at the proper rate for administration. The rectal tube is inserted and the administration of the gas continued as long as desired. Twenty more cases were treated by another physician with prepared gas supplied in tanks, but the results were negative.

Dr. O'Dwyer himself suggested the use of the laryngeal tube in grave cases of whooping cough accompanied by frequent and severe vomiting, with consequent loss of flesh and strength. A hard-rubber tube must be used, the chief cause of the so-called "retained tube" with the metal tube being the injury done the mucous membrane of the larynx by the spicules of calcareous matter deposited on the tube giving rise to excoriations and ulcerations which led to either cicatricial contraction or exuberant granulations. The hard-rubber tubes keep perfectly clean, and this element in the causation of retained tubes is done away with. O'Dwyer says: "Spasm of the glottis is the sole cause of the acute suffering in uncomplicated whooping cough, and could this element be removed the disease would be reduced to the level of an ordinary bronchial catarrh. In intubation we have a means of absolutely relieving the spasm of the glottis." The author has seen three cases of pertussis treated in this way. There would appear all the signs of a beginning paroxysm, excitement, and the desire to hold on to something for support; then followed a spasmodic cough of the usual length, as far as expiration was concerned, sometimes even causing cyanosis; but when the respiratory effort was made there could be no glottic spasm, the air entered the lungs freely through the tube, and the paroxysm terminated abruptly without the least distress or vomiting. After the removal of the tube the disease went on as before its use.

Charles Gilmore Kerley¹⁰ writes of drug values as observed in the management of 752 cases of whooping cough. The conclusions reached are: 1. That every case of whooping cough may be ameliorated either by modifying the severity or by diminishing the number of paroxysms. In many cases both the severity and number of paroxysms may be favorably influenced. 2. That remedies sedative in character, with fresh air, furnish the best results. 3. That if a remedy is to be of service its beneficial effects will be noticed within twenty-four hours, always within forty-eight. 4. That the best results are obtained when the antipyrin and bromide are commenced at the height of the paroxysmal stage and then pushed. 5. That these remedies being sedative in character, the effect may be lost in a prolonged case, requiring a change of treatment. 6. That children may have whooping cough and never whoop.

The author found that the combination of antipyrin and bromides gave the best results of any drugs used. They are used in the form of a compressed tablet. For a child 8 months old one-half grain antipyrin with two grains bromide of soda is given at two-hour intervals; for a child of 15 months one grain antipyrin and two and a half grains bromide of soda at two-hour intervals; $2\frac{1}{2}$ to 4 years, two grains antipyrin and three grains bromide of soda at two-hour intervals. The author considers it surprising how little fresh air is appreciated as a means of relief in whooping cough. Children cough much less out of doors than in an overheated and badly ventilated house. The increase of coughing at night may often be explained by the absence of proper ventilation in the sleeping apartment.

An editorial¹⁰ states that a micro organism has been found in the sputum of patients suffering with pertussis. It is not certain that this is the micro-organism against which all treatment should be directed, as some of the severe symptoms in this disease—catarrh of the air passages and disturbances of circulation—are not influenced by bactericides. It is, however, because of the association of the paroxysmal cough with other symptoms that many plans of treatment find favor. A drug that would destroy the coccus would be the ideal one, but it may be questioned whether such a drug would relieve the mucous membrane of its catarrh and the lungs of all the dangers of inflammation. Antipyrin diminishes the intensity of the paroxysms and lessens the frequency of severe attacks; its sedative action is increased by the addition of codein or heroin. The action of bromoform is not very satisfactory. Bromides and chloral are drugs that deserve more extended use. Belladonna is a valuable agent. All of these drugs are symptomatic. Hygiene, environment, nutrition, and other factors that enter so largely into the well-being of a growing child should receive careful attention, for without this care a drug, no matter how serviceable, will often fail to relieve a patient with whooping cough.

Pertussis, Contribution to the Cerebral Affections of.—Hockenjos³ collected 41 cases of cerebral hemorrhage occurring in the course of an attack of pertussis, and adds another observed by him in a 3-year-old boy who had lumbar spondylitis. After a paroxysm of coughing there was a sudden attack of dyspnea, followed by loss of consciousness and complete left-sided hemiparesis. Clonic twitchings began in the paralyzed side and lasted about two hours, when death occurred. The autopsy showed two small, fresh hemorrhages on the floor of the fourth ventricle to the right of the median line. Of the 42 hemorrhage cases, 6 were meningeal, 2 cortical, 7 in the white matter, 3 in the central ganglia, and 24 undetermined. Only 11 had autopsies performed. There were a few more under 5 years old than over. While any part of the central nervous system may become diseased in the course of pertussis, paralyzes are, on the whole, rare. There is no

proof that these paralyzes are due to the action of toxins or carbonic acid intoxication, while circulatory disturbances, especially hemorrhages, play a large part in their etiology. The production of such hemorrhages is especially dependent upon the number and severity of the cough paroxysms and the general condition of the child. Psychoses (hysteria, melancholia, hallucinations, etc.) also occur in pertussis patients.

Spastic Paralysis of Infancy.—A. Codivilla²³ says that this disease is at the present time considered to be almost entirely within the domain of orthopedic surgery. It is well known how physical therapy in spastic paralysis of the lower limbs, for instance, can to a great extent diminish the reflex excitability of the affected muscles, strengthen weak muscles, lengthen retracted ones, educate the centres, as it were, to the production of better co-ordinated movements, while surgery further carries on the cure by means of tenotomy, tenectomy, myotomy, etc. In addition to these valuable methods of treatment, the author desires to call attention to the value of transplantation and plastic operations upon tendons. In the majority of cases of infantile spinal paralysis the vicious position and the deformity are caused by a lack of equilibrium in the forces which move the articulation. Some muscles are paralyzed and others retain their power to a certain degree, so that with every voluntary or reflex movement some muscles contract and their antagonists remain inactive. This lack of equilibrium gives rise to the vicious position or to deformities from contracture. Tendino-muscular transplantation will restore a proper balance of strength, especially if stretching and shortening of the tendons be added to secure a passive equilibrium in the normal position. This process is used with success in pedal deformities due to infantile spinal paralysis.

Spina Bifida Lumbalis.—Krause²⁴ demonstrated a boy, 2 years old, who had been operated upon for spina bifida shortly after birth. Soon after the wound had healed hydrocephalus began to develop and had increased to an enormous size. In addition there were paraplegia of both legs and bladder and rectum paralysis. Hydrocephalus following obliteration of the sac of a spina bifida, whether by means of operation or iodine injections, is not rare; Krause thinks that the injection of Lugol's solution is the method most to be recommended.

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